TECHNICS SCEH60

MODEL

SERVICE MANUAL

ORDER NO. AD9703048C8

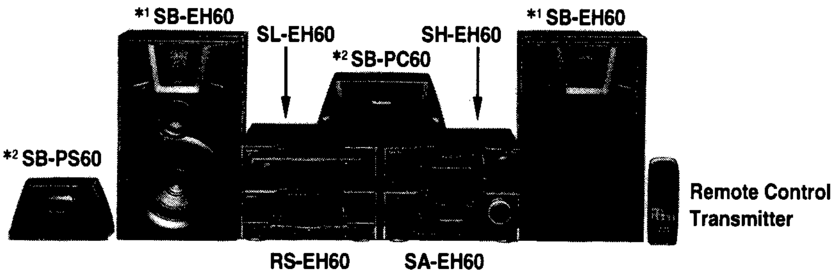
Service Manual

Tuner/Amplifier

SA-EH60

Tuner/Amplifier

System: SC-EH60



Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

Colour

(K) .... Black

Area

(E)/(EP) ... Europe, Russia.
(EB) .... Great Britain.
(EG)......... Germany and Itary.
(GC) .... Asia, Latin America, Middle East and Africa.
(GN) .... Oceania.

Specifications

Amplifier Section	
Power output :	
DIN 1 kHz, THD 1%, both channels driven ;	2 × 70 W(6 ohm)
RMS 1 kHz, THD 10%, both channels driven ;	2 × 100 W(6 ohm)
PRO LOGIC mode :	
DIN 1 kHz, THD 1%	
MAIN (both channels driven) ;	2 × 50 W(6 ohm)
CENTER ;	50 W(8 ohm)
SURROUND ;	50 W(4 ohm + 4 ohm)
RMS 1 kHz, THD 10%	
MAIN (both channels driven) ;	2 × 70 W(6 ohm)
CENTER ;	70 W(8 ohm)
SURROUND ;	70 W(4 ohm + 4 ohm)
PMPO 1 kHz :	2000 W (MAIN 6 ohm, CENT. 8 ohm, SURR. 4 ohm + 4 ohm)
Total harmonic distortion :	
Rated power at 1 kHz ;	1 %(6 ohm)
Half power at 1 kHz ;	0.09 %(6 ohm)
Load impedance :	
MAIN ;	6 – 8 ohm
CENTER ;	8 ohm
SURROUND ;	4 – 8 ohm
S/N (rated power):	
MAIN ;	80 dB
Input sensitivity/impedance:	
PHONO ;	2.5 mV/47 kohm
EXTERNAL ;	250 mV/15 kohm
Output level:	
EXTERNAL RECOUT ;	250 mV/1.5 kohm
V.BASS mode:	
Center frequency ;	60 Hz
LEVEL (VOL –30 dB) ;	+8 dB

FM tuner section	
Frequency range ;	87.50 – 108.00 MHz (0.05 MHz steps)
Sensitivity ;	1.8 µV (IHF usable)
S/N 26 dB ;	1.5 µV
S/N:	
MONO ;	70 dB (75 dB, IHF)
Stereo separation 1 KHz ;	35 dB
Antenna terminal(s) ;	75 ohm (unbalanced)
AM tuner section	
Frequency range:	
AM ;	522 – 1611 kHz (9 kHz steps) 530 – 1620 kHz (10 kHz steps)
Sensitivity (S/N 20 dB) ;	500 µV/m
Timer section	
Clock :	Quartz-lock type
Function :	Play timer (1 time), REC timer (1 time), Sleep (120 min, 30 min intervals)
Setting :	1 minute – 23 hours 59 minutes (1 min intervals)
General	
Power supply :	
For (E)/(EP) and (EG) areas ;	AC 230 V, 50 Hz
For (EB) and (GN) areas ;	AC 230 – 240 V, 50 Hz
For (GC) area ;	AC 110/127/220/230 – 240 V, 50/60 Hz
Power consumption :	205 W
Dimensions :	287 (W)/118.5 (H)/343.5 (D) mm
Weight :	5.0 kg

Notes: Specifications are subject to change without notice. Weight and dimensions are approximate.

System/SC-EH60:

Sound processor: SH-EH60,	Tuner/Amplifier: SA-EH60,	Compact disc changer: SL-EH60,	Cassette deck: RS-EH60,
Front speakers: *1 SB-EH60,	Center speaker: *2 SB-PC60,	Surround speakers: *2 SB-PS60	

Notes: ∗1 ...For (E)/(EP), (EB) and (EG) areas : Made in PAES, For (GC) and (GN) areas : Made in MESA
∗2... Made in MESA

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics®

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■ Before Repair

(1) Turn off the power supply. Using a 10 Ω, 10 W resistor, connect both ends of power supply capacitors (C701, C703 and C702, C704) in order to discharge the voltage.

(2) Before turning the power supply on, after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current at 50/60 Hz in NO SIGNAL mode should be shown below with respect to supply voltage 230V/240V/110V.

Area	(E) (EG) (EP)	(EB) (GN)	(GC)
Power supply voltage	AC 230 V	AC 240 V	AC 110 V
Consumed current 50 Hz	140 ~ 400 mA	140 ~ 400 mA	260 ~ 800 mA

■ Protection Circuitry

The protection circuitry may have operated if either of the following conditions is noticed:

* No sound is heard when the power is switched ON.
* Sound stops during a performance.

The functions of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.

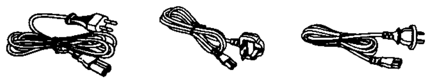
If this occurs, follow the procedure outlined below:

1. Switch OFF the power.
2. Determine the cause of the problem and correct it.
3. Switch ON the power once again.

Note:
When the protection circuitry functions, the unit will not operate unless the power is first switched OFF and then ON again.

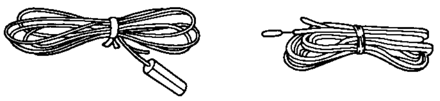
■ Accessories

- **AC power supply cord**
  For (E),(EG),(EP) and (GC) areas: (RJA0019-X) .. 1 pc.
  For (EB) area: (RJA0053-1X) .... 1 pc.
  For (GN) area: (RJA0035-X) .... 1 pc.



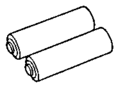
For (E),(EG) and (GC) areas　For (EB) area　For (GN) area

- **FM indoor antenna**
  For (E),(EB),(EG) and (EP) areas: (RSA0007) ... 1 pc.
  For (GC) and (GN) areas: (RSA0006) ..... 1 pc.

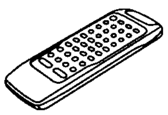


For (E),(EB)(EG) and (EP) areas　For (GC) area

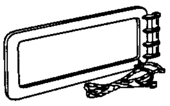
- **Batteries**
  (UM-4, "AAA", R03) .... 2 pc.
  Note: These are available on sales route.



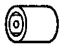
- **Remote control transmitter**
  (RAK-CH219WH) .... 1 pc.



- **AM loop antenna**
  (RSA0012) .... 1 pc.



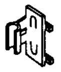
- **Antenna plug adaptor**
  (SJP9009) .... 1 pc.



(EB) area only

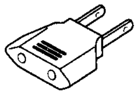
- **Speaker cords**
  (REE0393) .... 2 pc.

- **Antenna holder**
  (RMN0244) .... 1 pc.



- **Mounting screw**
  (XTN3+12AFZ) .... 1 pc.

- **AC plug adaptor**
  (SJP5213-2) .... 1 pc.



(GC) area only

■ Caution for AC Main Lead

("EB" area code model only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ◈ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

> **CAUTION!**
> IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFETY.
> THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF–KEEP DRY.

Before use

Removal the connector cover.

How to replace the fuse

The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.
Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.

Figure A

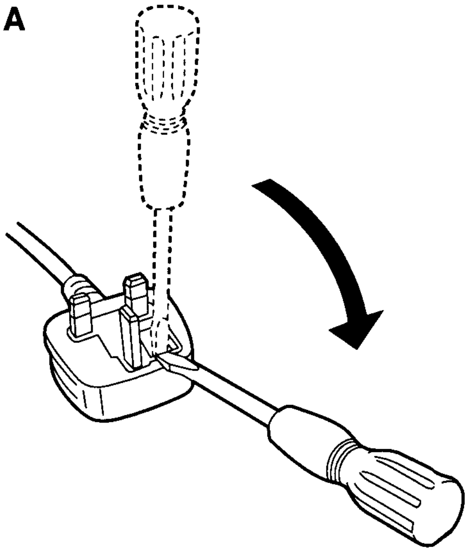
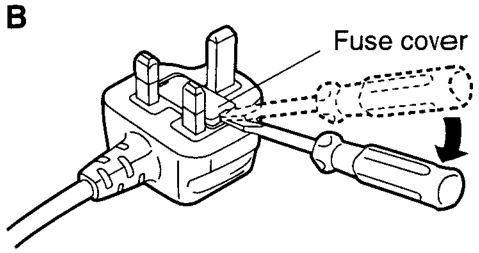


Figure B



2. Replace the fuse and close or attach the fuse cover.

Figure A

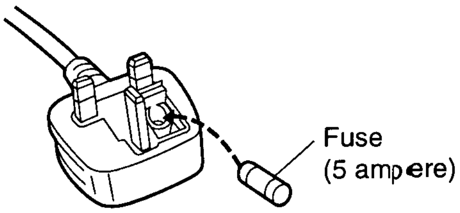
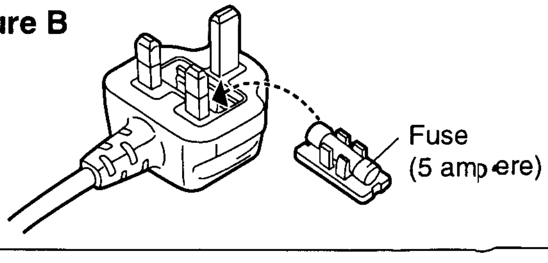


Figure B



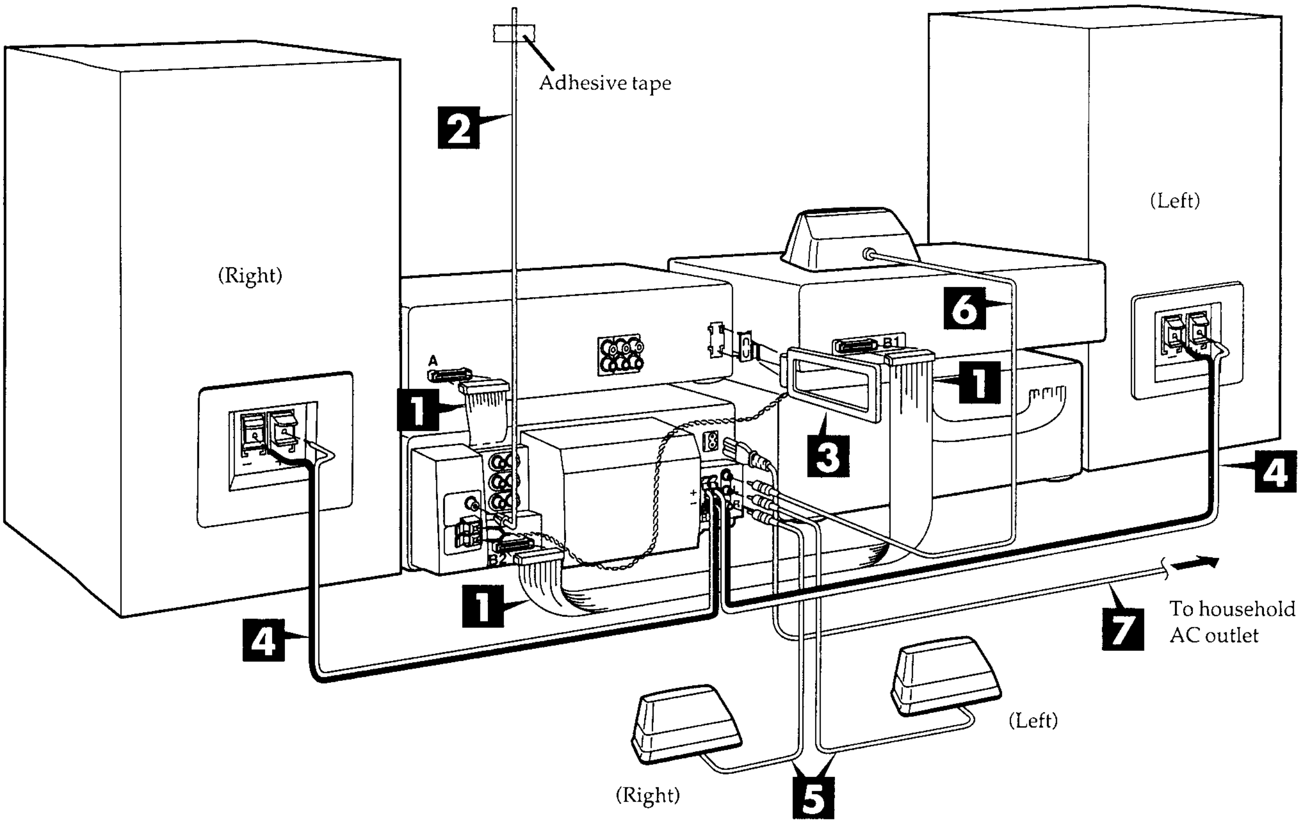
■ Connections

Connect the AC mains lead after you have connected all other cables.

For (GC) and (GN) areas

The configuration of the FM antenna terminal is different.

To prepare the AM loop antenna wire and speaker cords, twist the vinyl cover tip and pull off.

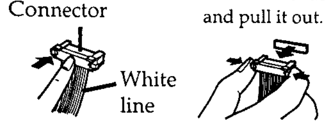

Adhesive tape
2
(Left)
(Right)
6
A
B1
1
1
3
B2
1
4
4
To household AC outlet
7
(Left)
(Right)
5

1

To connect cables

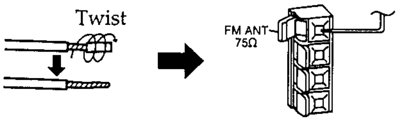
To unplug cables

Hold the connector from both ends and pull it out.

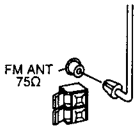

Connector
White line

2

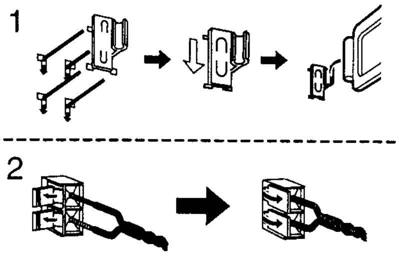
[For (GC) and (GN) areas]


Twist
FM ANT 75Ω

(For others)

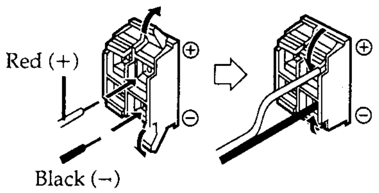


3

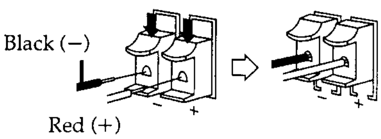


4

Tuner/amplifier side

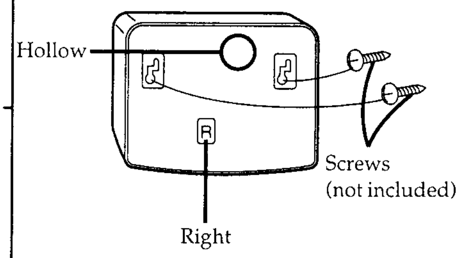


Speaker side



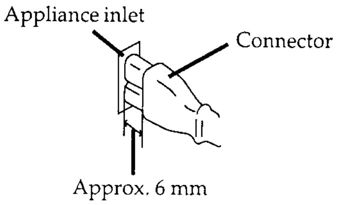
5

Bottom of the surround speaker


Hollow
Screws (not included)
R
Right

7

(Insertion of Connector)


Appliance inlet
Connector
Approx. 6 mm

1 Connect the flat cables.

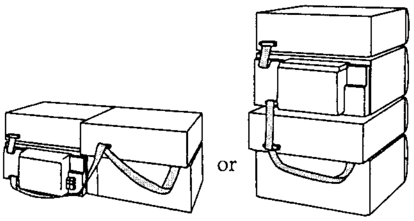
1. Connect the shorter flat cable from the tuner/amplifier to terminal A on the sound processor.
2. Connect the longer flat cable from the cassette deck to terminals B1 and B2.

Note

Do not try connecting or disconnecting the flat cables while the power is switched to ON.

After connection:

Keep cables as flat against the back of the unit as possible.



2 Connect the FM indoor antenna.

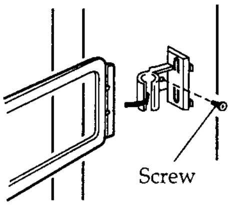
Tape the antenna to a wall or column, in a position where radio signals are received with the least amount of interference.

Note

When you cannot get good reception with this FM indoor antenna, we recommend you install an FM outdoor antenna (not included).

3 Connect the AM loop antenna.

- **To install on the rear panel of the sound processor.**
  1. Attach the antenna holder to the rear panel of the sound processor.
     Then clamp the antenna into the antenna holder.
  2. Connect the antenna terminal to the rear panel of the tuner/amplifier.
- **To install on walls or pillars.**



Note

To minimize noise pickup, bundle the loop antenna cord using tape or the like to keep the flat cables away from the AM loop antenna cord.

4 Connect the right (R) and left (L) front speaker cables.

Note

- To prevent damage to circuitry, never short-circuit positive (+) and negative (−) speaker wires.
- Be sure to connect only positive (red) wires to positive (+) terminals and negative (black) wires to negative (−) terminals.
- Left and right front speakers are exactly the same.

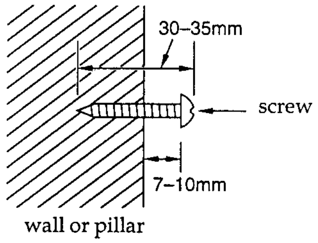
5 Connect the surround speaker cables.

Note

- Connect the surround speakers after checking their bottom panels to see which one is for the left channel and which one is for the right channel.
- When the speakers are to be mounted on a wall, select screws which are suited for the type of wall concerned.
- It is recommended that the speaker cords be fitted into the hollows provided on the bottom panels of the surround speakers.

Speaker attachment to wall

Screw the wood screw into a thick and hard part of the wall, leaving 7–10 mm of the screw projecting from the wall surface. (The wall or pillar on which the speaker systems are to be attached should be capable of supporting a weight of 5 kilograms.)



6 Connect the center speaker cables.

Note for front/center speakers

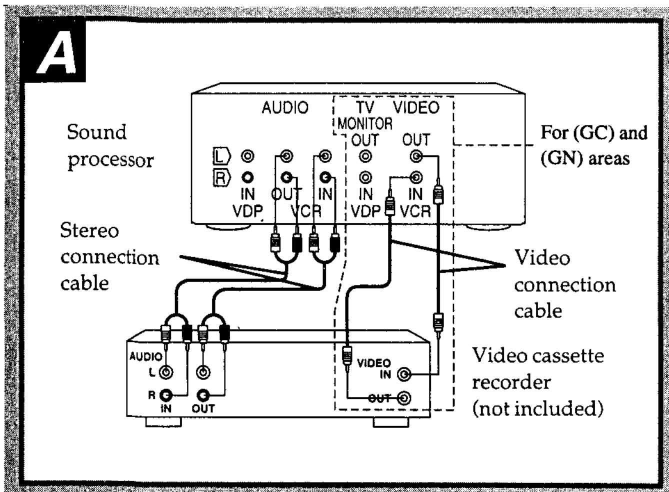
These speakers are made so as to be able to be used in close proximity to the TV, but irregular coloring may result due to how the system is placed. If such distortion occurs, turn off the TV for sometime between 15 and 30 minutes. The demagnetizing function of the TV will eliminate the distortion. If the irregular coloring is still visible, then move the speaker further away from the TV.
Please note that if there is a magnetic object near the TV, irregular coloring may result due to the interaction between the TV and the speakers.

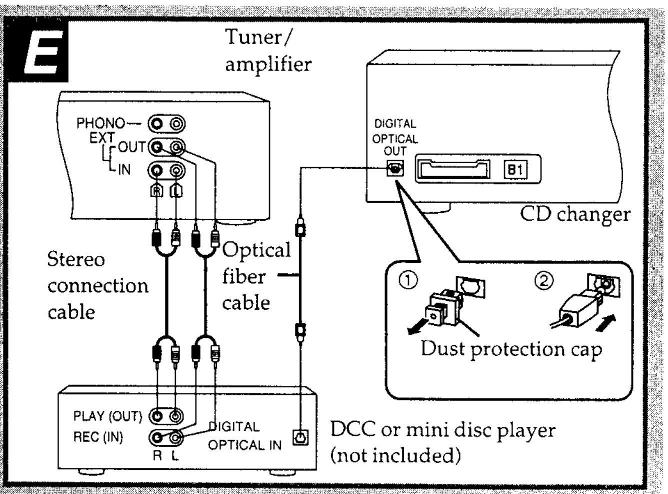
7 Connect the AC mains lead.

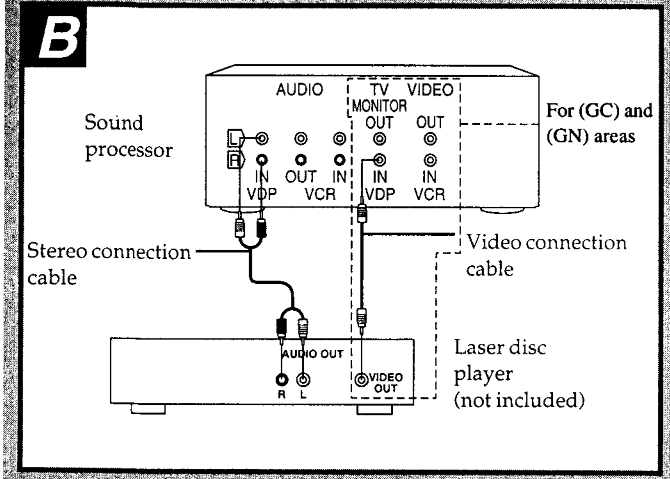
(United Kingdom only)
BE SURE TO READ THE CAUTION FOR AC MAINS LEAD ON PAGE 3 BEFORE PROCEEDING TO STEP 7.

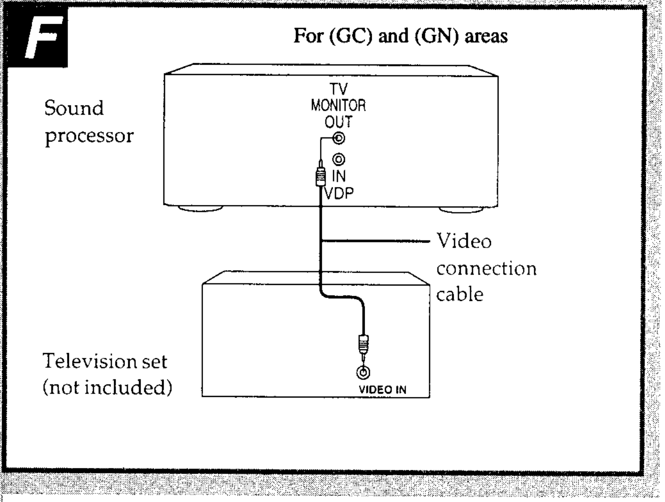
Insertion of Connector

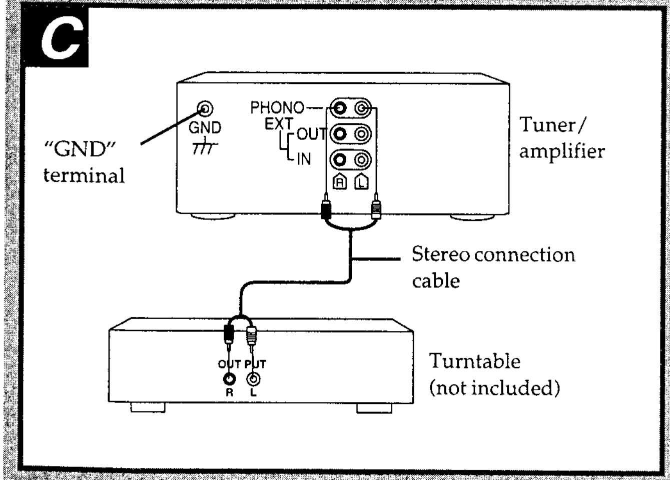
Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing.
However there is no problem using the unit.

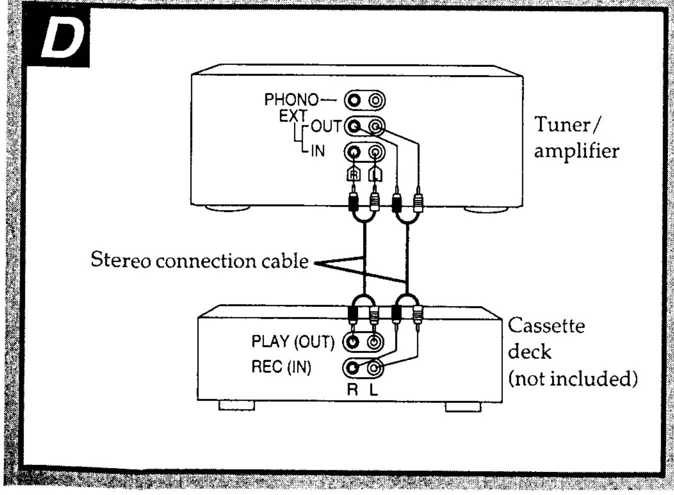

A
Sound processor
AUDIO
TV MONITOR OUT
VIDEO OUT
L
R
IN VDP
OUT VCR
IN
IN VDP
IN VCR
For (GC) and (GN) areas
Stereo connection cable
Video connection cable
AUDIO L R IN OUT
VIDEO IN
OUT
Video cassette recorder (not included)

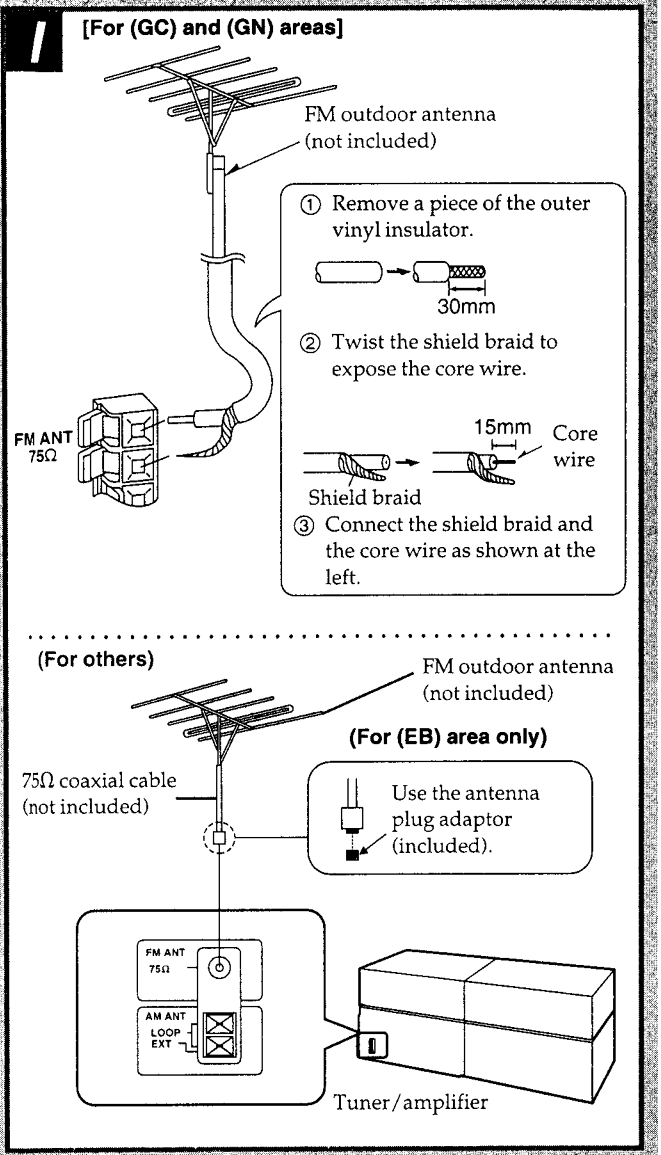

E
Tuner/ amplifier
PHONO—
EXT OUT
IN
R L
DIGITAL OPTICAL OUT
B1
CD changer
Stereo connection cable
Optical fiber cable
①
②
Dust protection cap
PLAY (OUT)
REC (IN)
R L
DIGITAL OPTICAL IN
DCC or mini disc player (not included)


B
Sound processor
AUDIO
TV MONITOR OUT
VIDEO OUT
L
R
IN VDP
OUT VCR
IN
IN VDP
IN VCR
For (GC) and (GN) areas
Stereo connection cable
Video connection cable
AUDIO OUT
R L
VIDEO OUT
Laser disc player (not included)


F
For (GC) and (GN) areas
Sound processor
TV MONITOR OUT
IN VDP
Video connection cable
Television set (not included)
VIDEO IN


C
"GND" terminal
GND
PHONO—
EXT OUT
IN
R L
Tuner/ amplifier
Stereo connection cable
OUTPUT
R L
Turntable (not included)


D
PHONO—
EXT OUT
IN
R L
Tuner/ amplifier
Stereo connection cable
PLAY (OUT)
REC (IN)
R L
Cassette deck (not included)

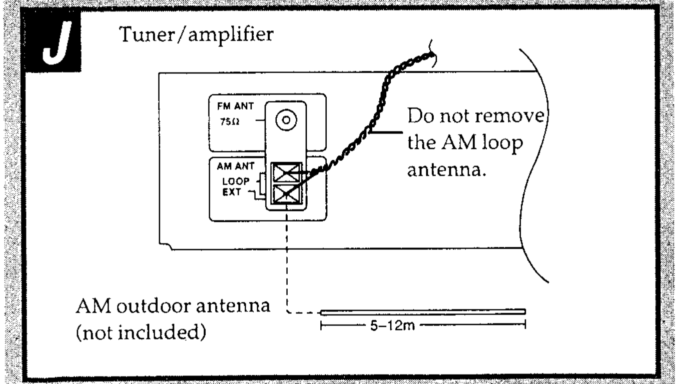

I
[For (GC) and (GN) areas]
FM outdoor antenna
(not included)
30mm
15mm
Core wire
Shield braid
FM ANT 75Ω
(For others)
FM outdoor antenna
(not included)
(For (EB) area only)
75Ω coaxial cable
(not included)
FM ANT 75Ω
AM ANT LOOP EXT
Tuner/amplifier

① Remove a piece of the outer vinyl insulator.

② Twist the shield braid to expose the core wire.

③ Connect the shield braid and the core wire as shown at the left.

Use the antenna plug adaptor (included).


J
Tuner/amplifier
FM ANT 75Ω
AM ANT LOOP EXT
AM outdoor antenna
(not included)
5–12m

Do not remove the AM loop antenna.

External unit connections

- Make sure that the power supply for all components has been turned off before making any connections.
- For details, refer to the operating instructions of the units which are to be connected.
- All peripheral components and cables sold separately.

Stereo connection cable
White (L)
Red (R)

A Video Cassette recorder

B Laser disc player

C Turntable

"GND" terminal:
This terminal is for ground wire use.

D Cassette deck

E DCC or mini disc player

Connections to "DIGITAL OPTICAL OUT" terminal:
Before using this terminal, take out the dust protection cap.
Connect an optical-fiber cable to the optical input terminal of the DCC or minidisc deck.

F Television set [For (GC) and (GN) areas]

Optional antenna connections

You may need an outdoor antenna if you use this system in a mountainous region or inside a reinforced-concrete building, etc.

FM outdoor antenna (not included) I

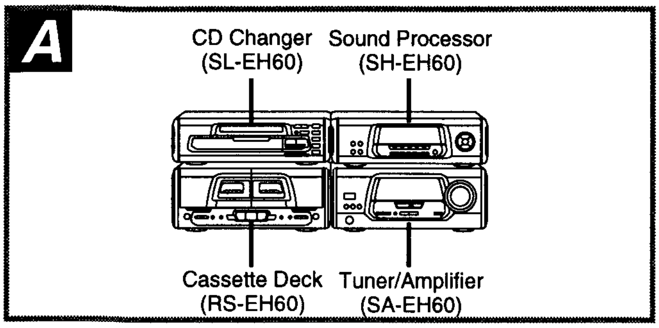
Note
An outdoor antenna should be installed by a qualified technician only.

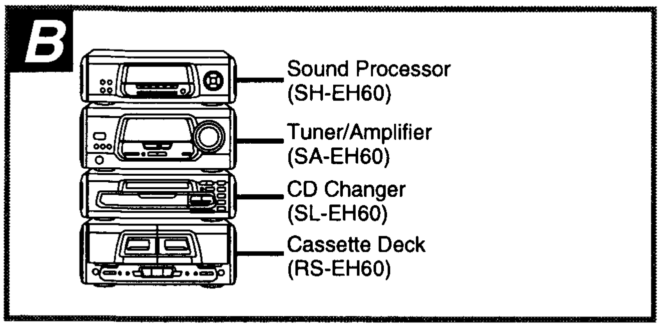
AM outdoor antenna (not included) J

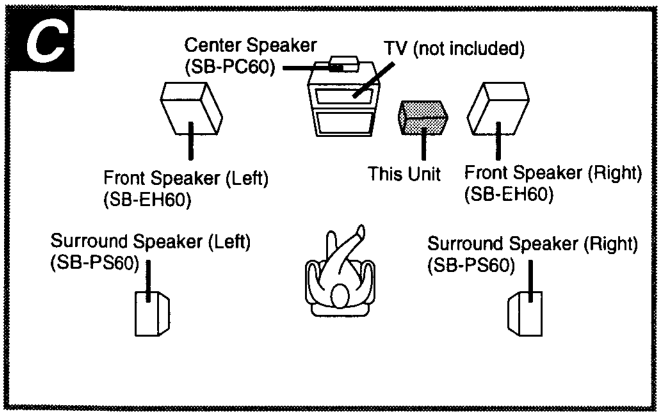
Connect the outdoor antenna without removing the AM loop antenna. Run 5 to 12 m of vinyl-covered wire horizontally along a window or other convenient location.

Note
When the unit is not in use, disconnect the outdoor antenna to prevent possible damage that may be caused by lightning. Never use an outdoor antenna during an electrical storm.

Installation


A
CD Changer (SL-EH60)
Sound Processor (SH-EH60)
Cassette Deck (RS-EH60)
Tuner/Amplifier (SA-EH60)


B
Sound Processor (SH-EH60)
Tuner/Amplifier (SA-EH60)
CD Changer (SL-EH60)
Cassette Deck (RS-EH60)


C
Center Speaker (SB-PC60)
TV (not included)
Front Speaker (Left) (SB-EH60)
This Unit
Front Speaker (Right) (SB-EH60)
Surround Speaker (Left) (SB-PS60)
Surround Speaker (Right) (SB-PS60)

Locating the components

Side-by-side set-up A
Stacking B

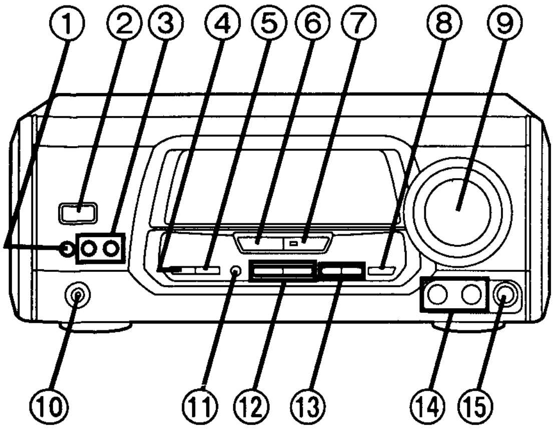
Placement of speakers C

As well as enjoying normal stereo reproduction with the left and right front speakers, a center speaker and surround speakers can also be connected to the unit in order to enjoy the sound performance of DOLBY PRO LOGIC Systems.

We recommend that surround speakers be placed on the side of or slightly behind the listener, and about one meter higher than ear level.
However the position should be adjusted to your personal preference, because the effect varies to some degree depending upon the type of music and the music source.

Caution
Use the speakers only with the recommended system. Failure to do so may lead to damage to the amplifier and/or the speaker, and may result in the risk of fire. Consult a qualified service person if damage has occurred or if you experience a sudden change in performance.

Location of Controls

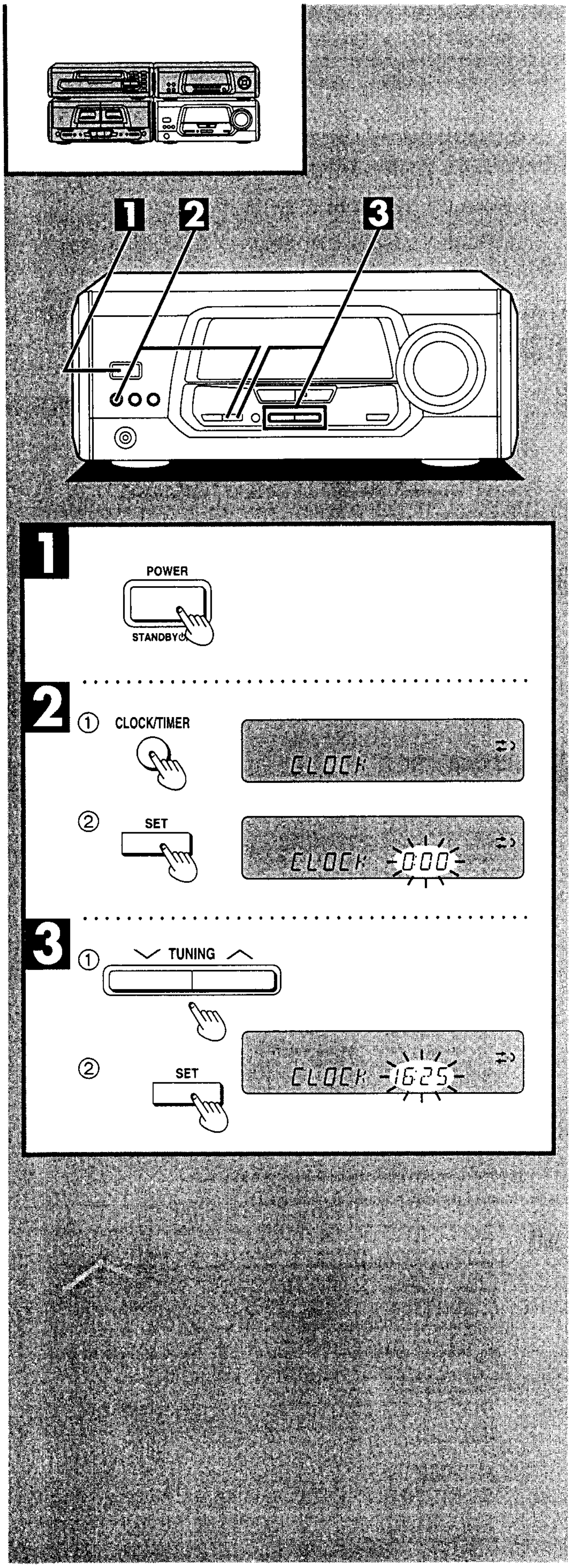

①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮

① Clock/timer button (CLOCK/TIMER)
② Power "STANDBY ⏻ /ON" switch
(POWER, STANDBY ⏻ /ON)
③ Timer on/off buttons (◷ PLAY, ◷ REC)
④ Tuning mode select button (TUNING MODE)
⑤ Set button (SET)
⑥ Source input select button (INPUT SELECTOR)
⑦ Tuner/band select button and indicator (TUNER/BAND)
⑧ V.bass button (V.BASS)
⑨ Volume control (VOLUME)
⑩ Headphones jack (PHONES)
⑪ FM mode select button (FM AUTO/MONO)
⑫ Tuning buttons (∨,∧ ,TUNING)

For (EG) and (EP) areas
⑬ RDS display mode select buttons

For (GC) and (GN) areas
⑬ KARAOKE and Echo buttons (KARAOKE, ECHO)
⑭ Microphone jacks (MIC, 1, 2)
⑮ Microphone volume control (MIC VOL)

■ Setting the Time



The tuner/amplifier displays the time, frequency and other information on CDs and tapes.

This is a 24-hour display clock.

These instructions explain how to set the timer for 16:25.

1 Switch on the power.

2 ① Press CLOCK/TIMER to show "CLOCK".

Every time you press the button, the indication changes in the order of CLOCK→⊙ PLAY→⊙ REC→Original display.

Within 5 seconds:

② Press SET.

3 ① Press TUNING (∨ or ∧) to set the present time on the display.

The time display can be changed in one minute units by tapping the buttons, and quickly by holding down the buttons.

② Press SET.

The display will return to the previous display after about 3 seconds.

When "--:--" appears:

It appears when you connect the AC power supply cord for the first time or if there has been a power failure.
Reset the time as explained above.

If the minutes setting is off:

1. Press CLOCK/TIMER.
2. Press SET.
3. Press TUNING (∨ or ∧) to set the minutes, and then press SET.

To display the clock again:

Press CLOCK/TIMER.
The clock display will appear for about 5 seconds.

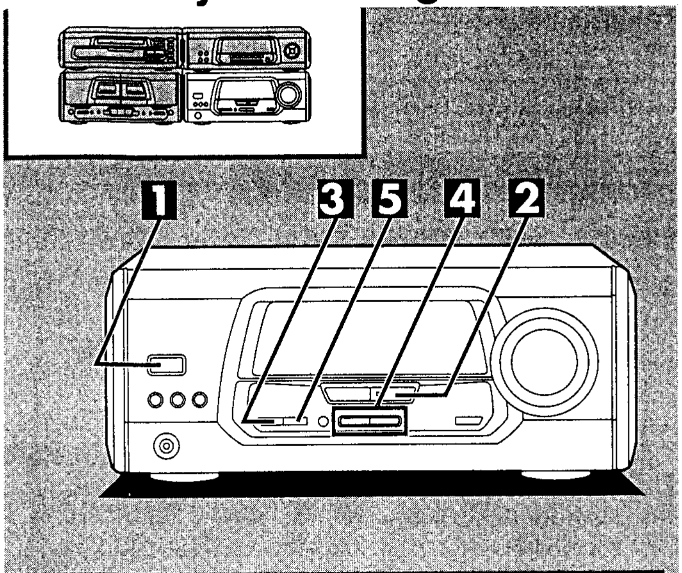
For your reference:

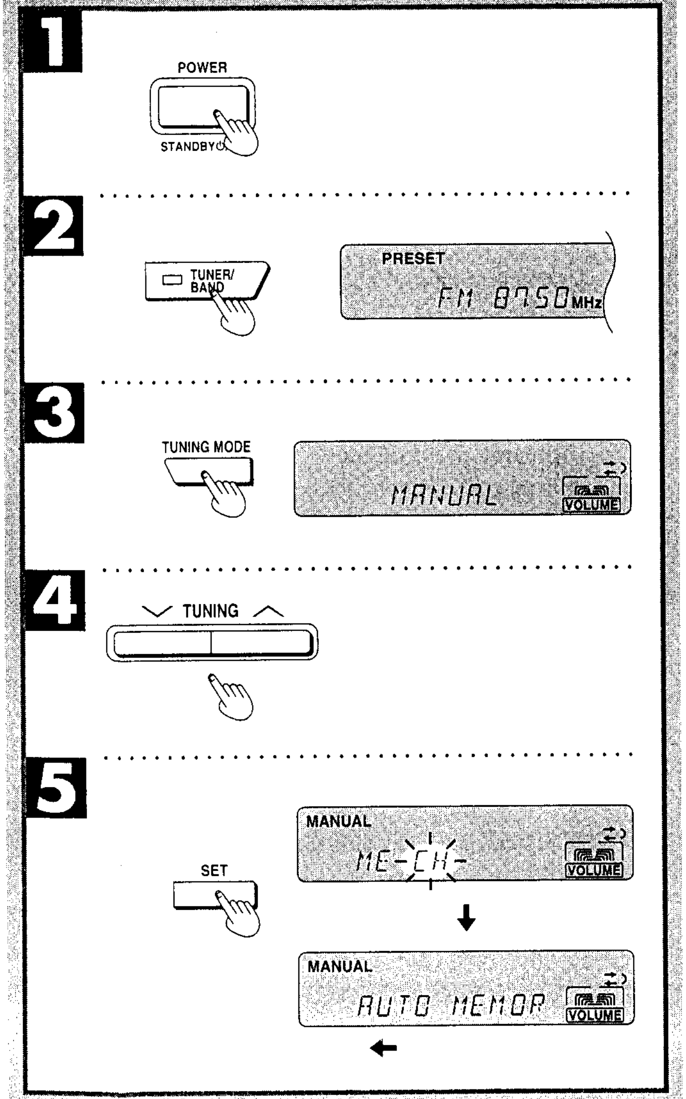
When you turn OFF the system from the POWER button, the system goes on standby.

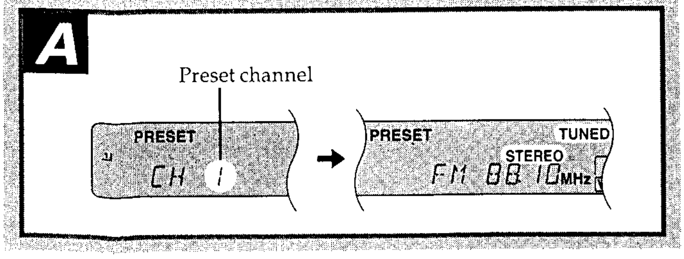
Demo function while the power is on:

When the input source is set to "CD" or "TAPE", the demo function will run automatically after about 2 minutes or more in the stop mode.
You can cancel the demo function by pressing and holding DISP MODE/-DEMO for about 2 seconds or more while the automatic demo function is activated.

■ Memory Presetting







- Once stations have been preset, you can easily select them from the tuner/amplifier or the remote control.
- You can preset a total of 39 stations between the FM and AM bands.
- Stations can be set automatically or manually.

Automatic memory presetting

The frequencies are automatically preset (in sequence from lower to higher frequencies) into the memory: "channels" 1 to 39 are available for the presetting of FM stations and "channels" 21 to 39 are available for AM stations.

This example in the figure shows how to preset FM stations.

1 Switch on the power.

2 Press TUNER/BAND to select the desired band.

Each time you press this button, "FM" and "AM" will appear alternately.

3 Press TUNING MODE to select "MANUAL".

Each time you press this button, "MANUAL" and "PRESET" will appear alternately.

4 Press and hold TUNING (∨ or ∧) until the display shows the frequency from which you want to begin automatic memory presetting.

Press TUNING (∨ or ∧) momentarily to stop scrolling when the displayed frequency approaches the desired frequency. Tap TUNING (∨ or ∧) a few times until the desired frequency is reached.

5 Hold down SET.

Release your finger when the words "AUTO MEMORY" scroll across the display.

The "ME" in the display will then flash while the tuner/amplifier is storing the received frequency in memory. When storing is complete, "SET OK" will be displayed.

To confirm the preset stations: A

1. Press TUNING MODE to select "PRESET".
2. Press TUNING (∨ or ∧).

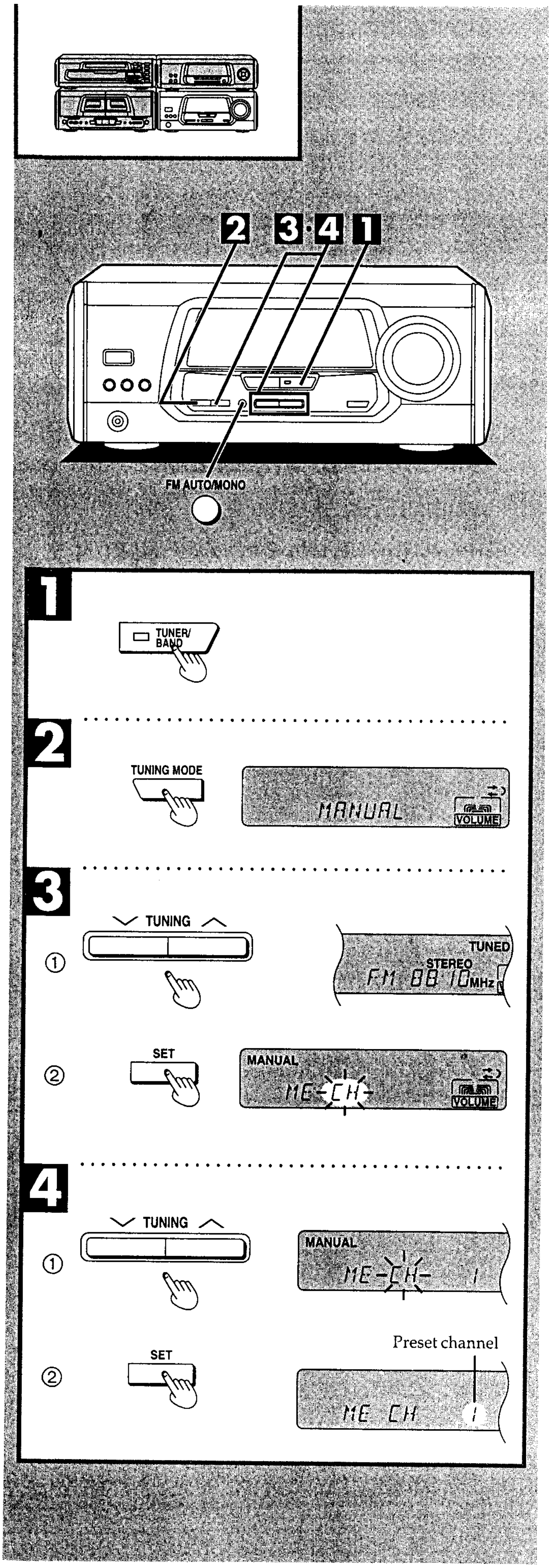
"STEREO" lights when an FM stereo broadcast is being received.
"TUNED" lights when you precisely tune in a broadcast station.

When "ERROR" appears:

Automatic memory presetting does not work when radio waves from the broadcasting station are too strong or too weak.
In such case, carry out presetting manually.

Note

When you preset a broadcast station to a channel that has already been preset, the previous presetting will be erased. So if, for example, FM frequencies are preset from channel 1 to 39 and then AM frequencies are preset, the first AM frequency will be preset to channel 21 (thus erasing the FM presetting to channel 21), the second AM frequency will be preset to 22 (erasing FM 22), and so on.


2
3·4
1
FM AUTO/MONO
1
TUNER/BAND
2
TUNING MODE
MANUAL
VOLUME
3
TUNING
①
TUNED
STEREO
FM 88.10MHz
②
SET
MANUAL
ME-CH-
VOLUME
4
TUNING
①
MANUAL
ME-CH- 1
②
SET
Preset channel
ME CH 1

Manual memory presetting

This example in the figure shows how to store FM 88.10 MHz into preset channel 1.

1 Press TUNER/BAND to select the desired band.

Each time you press this button, "FM" and "AM" will appear alternately.

2 Press TUNING MODE to select "MANUAL".

Each time you press this button, "MANUAL" and "PRESET" will appear alternately.

3 ① Press TUNING (∨ or ∧) to tune in the desired broadcast.

"STEREO" lights when an FM stereo broadcast is being received.

"TUNED" lights when you precisely tune in a broadcast station.

Automatic scanning:

Press and hold TUNING (∨ or ∧) until the displayed frequency starts to scroll.

- The scrolling of the displayed frequency will automatically stop if a broadcast station frequency is located during the tuning process.
- When there is excessive interference, the automatic scanning may not function.

To cancel the automatic scanning, press TUNING (∨ or ∧) once again.

② Press SET momentarily.

"CH" flashes.

4 ① Press TUNING (∨ or ∧) to select the desired preset channel

② Press SET momentarily.

"CH" lights and the display returns to the frequency after about two seconds.

To continue presetting:

Repeat steps **1** through **4**.

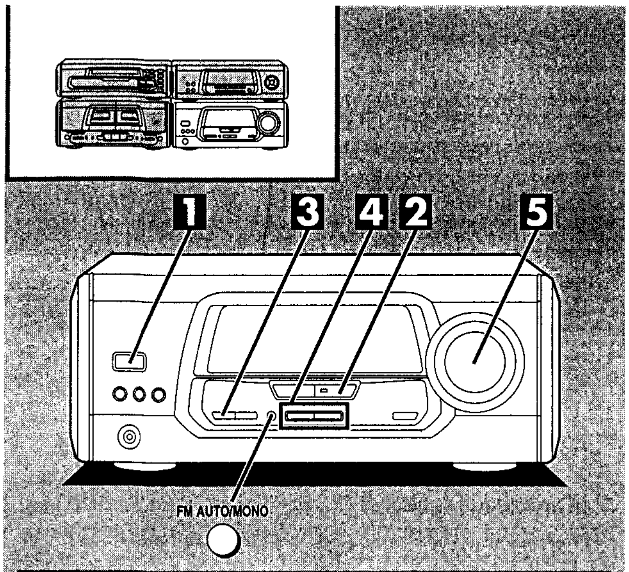
To preset FM stations in monaural position:

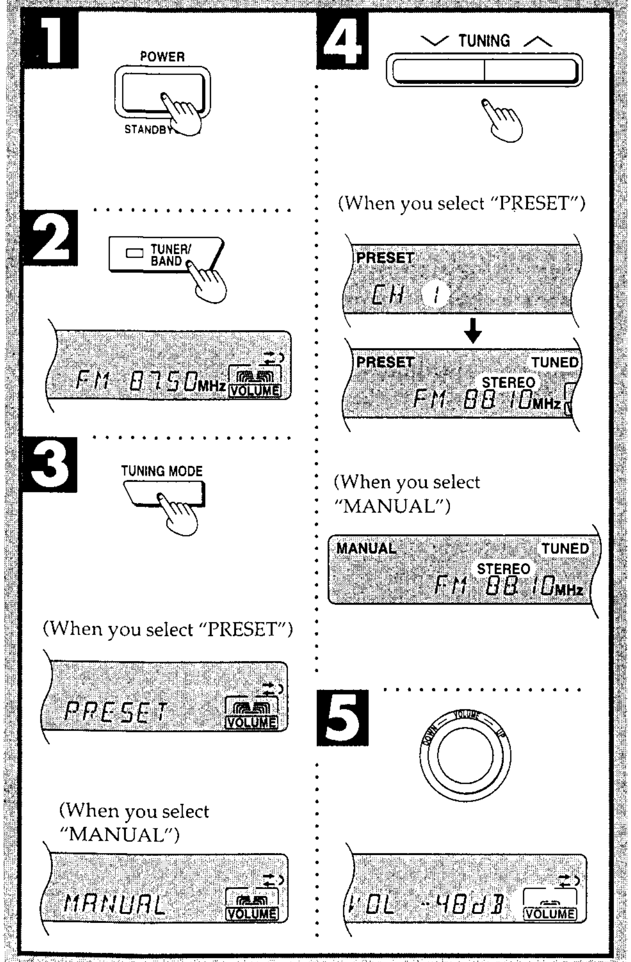
1. Select the desired frequency.
2. Press FM AUTO/MONO.
   "MONO" will light.
3. Follow steps **3**-② and **4** above.

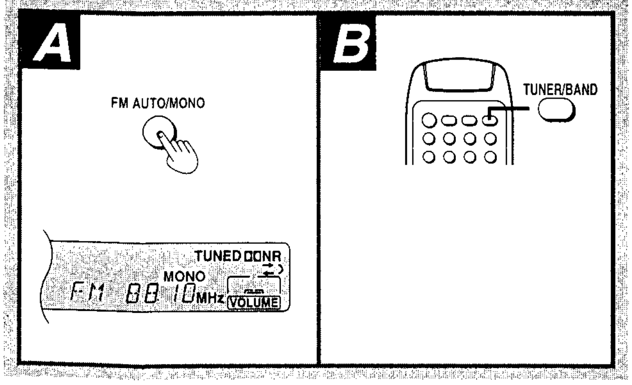
For your reference:

Even if the power cord is disconnected from the household AC outlet, the memory will retain its contents for approximately 2 weeks.

■ Listening to Radio Broadcasts


1
3
4
2
5
FM AUTO/MONO


1
POWER
STANDBY
2
TUNER/BAND
FM 87.50MHz
VOLUME
3
TUNING MODE
(When you select "PRESET")
PRESET
VOLUME
(When you select "MANUAL")
MANUAL
VOLUME
4
TUNING
(When you select "PRESET")
PRESET
CH 1
PRESET
TUNED
STEREO
FM 88.10MHz
(When you select "MANUAL")
MANUAL
TUNED
STEREO
FM 88.10MHz
5
DOWN
VOLUME
UP
VOL -48dB
VOLUME


A
FM AUTO/MONO
TUNED
MONO
FM 88.10MHz
VOLUME
B
TUNER/BAND

This example in the figure shows how to tune in FM stations.

1 Switch on the power.

2 Press TUNER/BAND to select the desired band.

Each time you press this button, "FM" and "AM" will appear alternately.

3 Press TUNING MODE to select "PRESET" or "MANUAL".

Each time you press this button, "MANUAL" and "PRESET" will appear alternately.

- Select "PRESET" when stations are preset.
- Select "MANUAL" when stations are not preset.

4 Press TUNING (∨ or ∧) to tune in the desired broadcast.

"STEREO" lights when an FM stereo broadcast is being received.

"TUNED" lights when you precisely tune in a broadcast station.

Automatic scanning (when you select "MANUAL" in step 3):

Press and hold TUNING (∨ or ∧) until the displayed frequency starts to scroll.

- The scrolling of the displayed frequency will automatically stop if a broadcast station frequency is located during the tuning process.
- When there is excessive interference, the automatic scanning may not function.

To cancel the automatic scanning, press TUNING (∨ or ∧) once again.

5 Adjust the volume level as you like.

For tuning by remote control (when you select "PRESET" in step 3 above):

Specify the channel you want with the numeric buttons.

To select a two-digit channel:

Press ≥10 and then the two numbers you want within 10 seconds or so.

Note

When the FM station is preset to "MONO", the "STEREO" indicator will not light up even if a stereo broadcast is being received.

If noise is excessive in the FM stereo mode: A

Press FM AUTO/MONO.

The sound reception mode switches to "MONO" (monaural) and "MONO" lights.

The sound will then be heard in monaural. If the broadcast signal is weak, or if there is a large amount of interference, you will get a clearer sound using MONO function.

To cancel the "MONO" mode, press the button again.

When "MONO" indicator goes off:

Use this setting for normal listening. Both stereo and monaural sounds can be heard as they are.

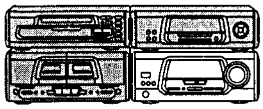
Note

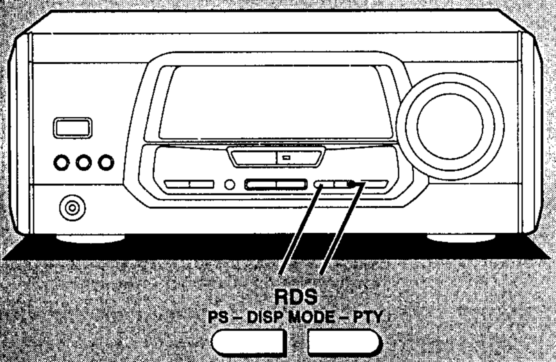
If you change frequencies in the "MONO" mode, the "MONO" mode will be cancelled.

One-touch play B

When the system is OFF, you can receive the station last tuned in when you press TUNER/BAND on the remote control.
Play will start with volume increasing gradually.

■ Enjoying RDS Broadcasts [For (EG) and (EP) areas]





This unit lets you take advantage of the Radio Data System (RDS) in areas where RDS broadcast services are received. This advanced system provides useful information, utilizing a 57 kHz subcarrier above the audible range, in addition to the main FM signal.

Types of RDS and functions

To display the name of a broadcast station (PS display):

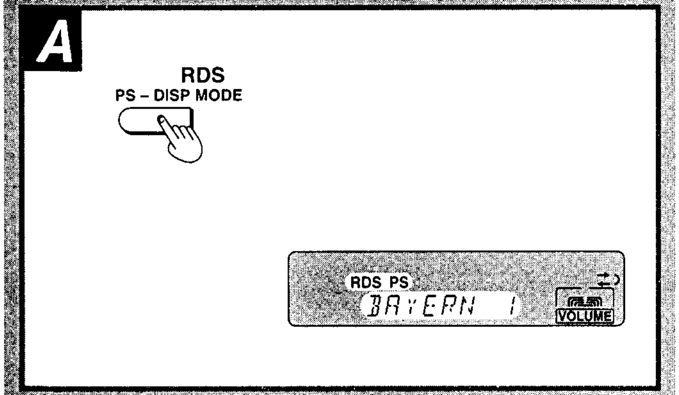
When this system receives a PS signal in an RDS broadcast, the name of the broadcast station is shown on the display.

To display the type of a program (PTY display):

While the PTY signal is being received, the name of the type of program currently being broadcast can be shown on the display.

Notes

- Even if an FM broadcast station is transmitting RDS signals, the functions of this system may not be able to utilize these signals if the signal quality is too poor.
- "PTY" may not be available in some areas. (Future function)

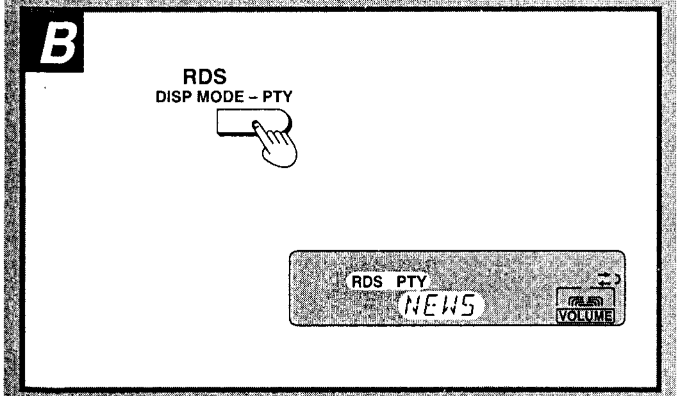


To display the name of a broadcasting station **A**

(When th FM station is received)

Press PS-DISP MODE.

If the FM broadcast being received provides the RDS service ("RDS" indicator will light), the name of the broadcast station and "PS" indicator will be shown on the display of this system.
Each time you press the button, frequency display and PS display will appear alternately.



To display the type of a program **B**

(When the FM station is received)

Press DISP MODE-PTY.

If the FM broadcast being received provides the RDS service ("RDS" indicator will light), the type of the program and "PTY" indicator will be shown on the display of this system.
Each time you press the button, frequency display and PTY display will appear alternately.

When "NO RDS" is displayed

If the FM broadcast being received does not provide RDS service, "NO RDS" will be displayed when the PS display mode or PTY display mode is selected.

Note

When receiving a broadcast station, in PTY mode, which does not transmit PTY, the display will not show "NO PTY" automatically.
The same also applies to "NO RDS" when RDS is not transmitted.

About the PTY display

There are a total of 15 PTY displays on this unit. The table gives an explanation of each display.

Display	Explanation
NEWS	Short accounts of facts, events and publicly expressed views, reportage and actuality.
AFFAIRS	Topical program expanding or enlarging upon the news, generally in different presentation style or concept, including documentary debate, or analysis.
INFO	Program whose purpose is to impart advice in the widest sense, including meteorological reports and forecasts, consumer affairs, medical help, etc.
SPORT	Program concerned with any aspect of sport.
EDUCATE	Program intended primarily to educate.
DRAMA	All radio plays and serials.
CULTURE	Programs concerned with any aspect of national or regional culture, including religious affairs, philosophy, social science, language, theatre, etc.
SCIENCE	Programs about the natural sciences and technology.
VARIED	Used for mainly speech-based programs, usually of a light-entertainment nature not covered by above categories. Examples are: quizzes, panel games, personality interviews, comedy and satire.
POP M	Commercial music which would generally be considered to be of current popular appeal, often featuring in current or recent record sales charts.
ROCK M	Contemporary modern music, usually written and performed by young musicians.
M.O.R.M	(Middle of the Road Music). Common term to describe music considered to be "easy-listening", as opposed to Pop, Rock or Classical. Music in this category is often, but not always, vocal, and usually of short duration (<5 min.).
LIGHT M	Classical Musical for general, rather than specialist, appreciation. Examples of music in this category are instrumental music and vocal or choral works.
CLASSICS	Performances of major orchestral works, symphonies, chamber music etc., and including Grand Opera.
OTHER M	Musical styles not fitting into any of the above categories. Particularly used for specialist music, of which Jazz, Rhythm & Blues, Folk, Country, and Reggae ar examples.

Operation Checks and Main Component Replacement Procedures

NOTE

1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**
4. **Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.**

• Contents

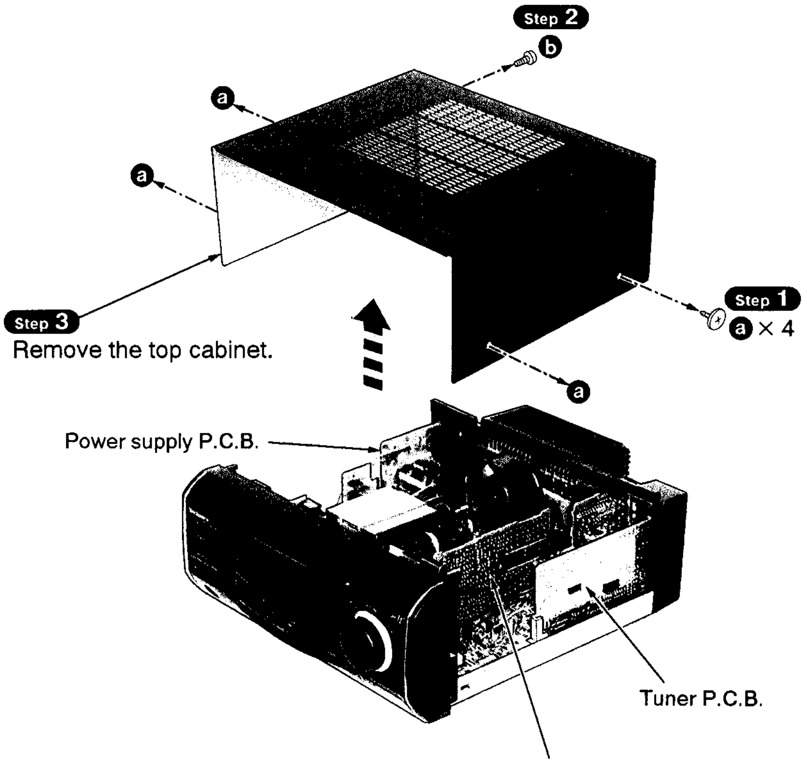
• **Checking Procedure for each P.C.B.** Page.
1. Checking for the tuner P.C.B., dolby prologic P.C.B. and power supply P.C.B.. •••••••••••••••••••••••••• 15.
2. Checking for the operation P.C.B.. •• 16.
3. Checking for the main P.C.B.. •• 16,17.

• **Main Component Replacement Procedures**
1. Replacement for the power IC and regulator transistor. •• 18.

Checking Procedure for each P.C.B.

1. Checking for the tuner P.C.B., dolby prologic P.C.B. and power supply P.C.B.

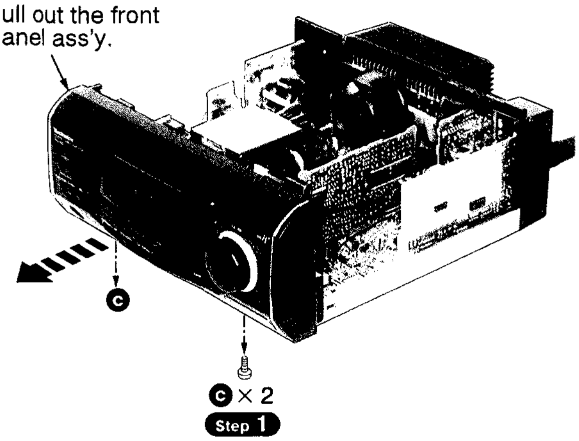
• **Check the tuner P.C.B., dolby prologic P.C.B. and power supply P.C.B. as shown below.**



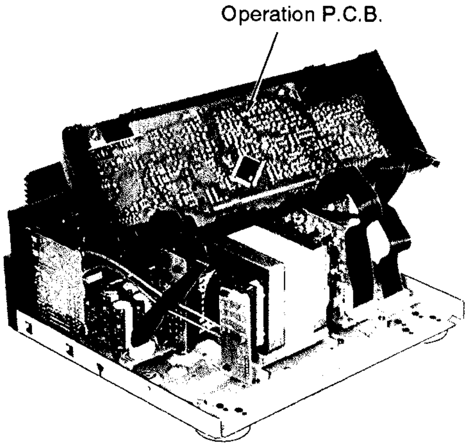
2. Checking for the operation P.C.B.

- Follow the **Step 1** ~ **Step 3** of the item 1 in checking procedure for each P.C.B. on page 15.

Step 2
pull out the front panel ass'y.

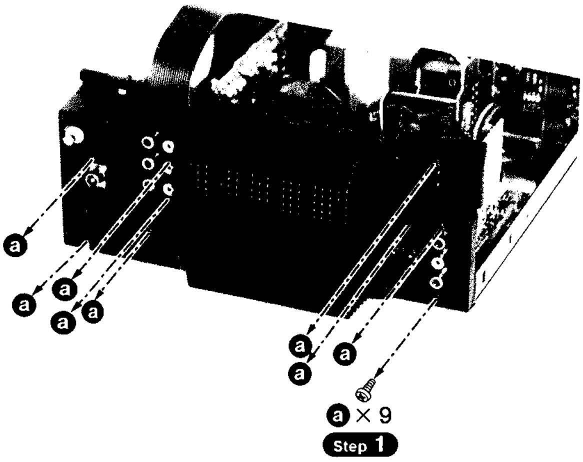


- **Check the operation P.C.B. as shown below.**

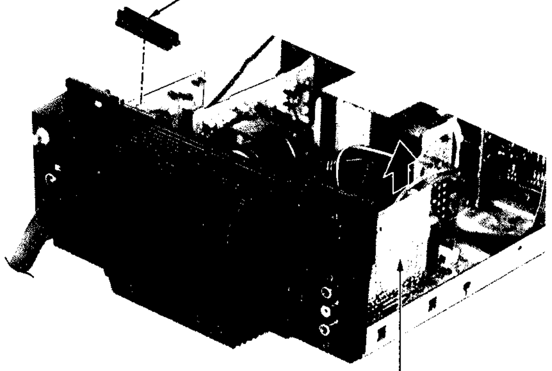


3. Checking for the main P.C.B.

- Follow the **Step 1** ~ **Step 3** of the item 1 in checking procedure for each P.C.B. on page 15.

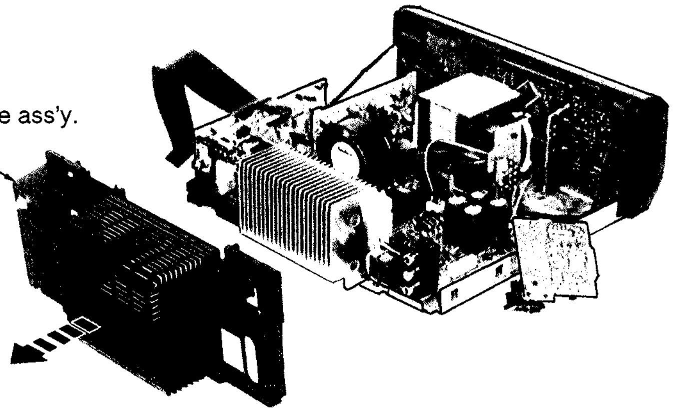


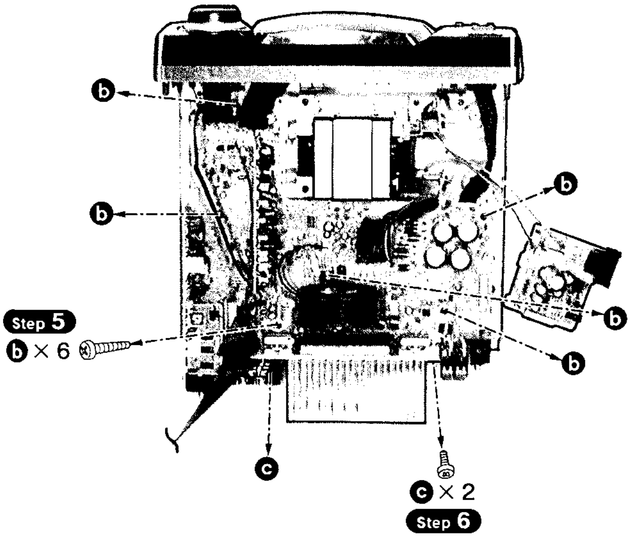
Step 2
Remove the cable holder.



Step 3
Pull out the IN/OUT terminal P.C.B. in the direction of arrow.

Step 4
Remove the rear grille ass'y.



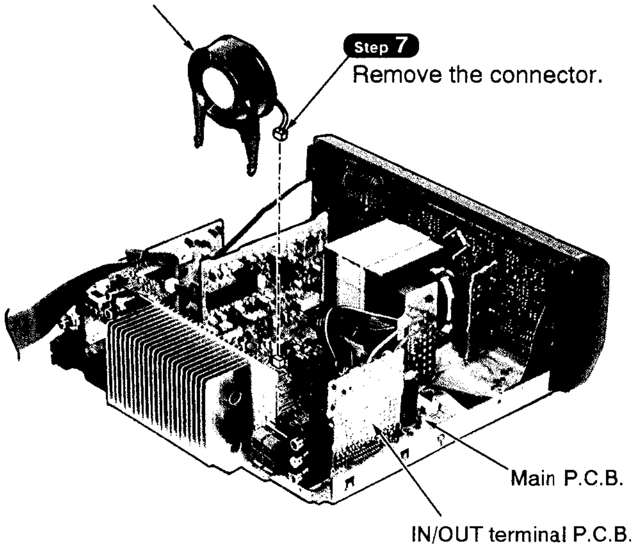


Step 5
ⓑ × 6

ⓒ × 2
Step 6

Step 8
Remove the fan unit.

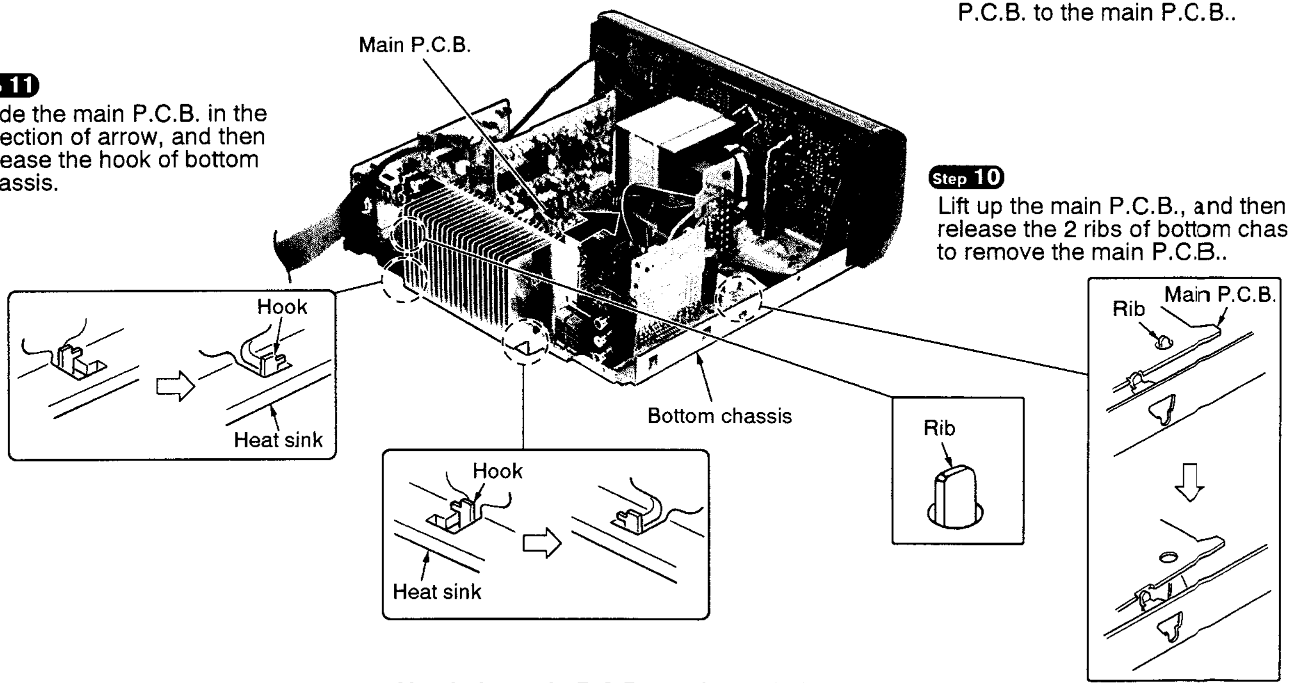
Step 7
Remove the connector.


Main P.C.B.
IN/OUT terminal P.C.B.

Step 9
Reinstall the IN/OUT terminal P.C.B. to the main P.C.B..

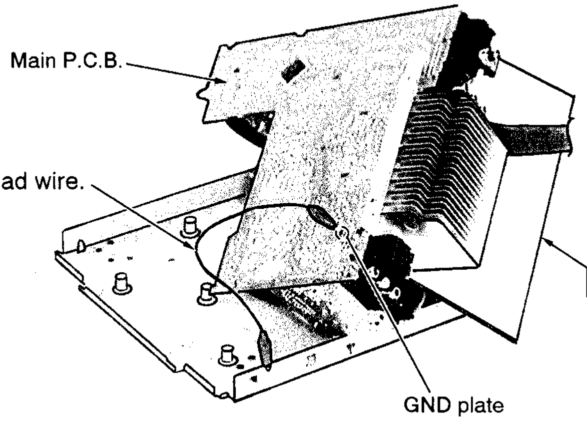
Step 11
Slide the main P.C.B. in the direction of arrow, and then release the hook of bottom chassis.

Step 10
Lift up the main P.C.B., and then release the 2 ribs of bottom chassis to remove the main P.C.B..


Main P.C.B.
Hook
Heat sink
Bottom chassis
Hook
Heat sink
Rib
Rib
Main P.C.B.

• Check the main P.C.B. as shown below.

Step 12
Connect the lead wire.


Main P.C.B.
GND plate

NOTE
Insulate main P.C.B. with insulation material to avoid short–circuit.

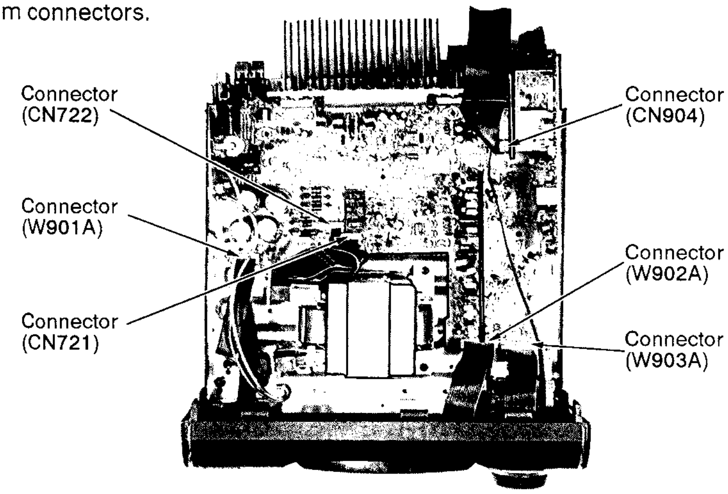
Main Component Replacement procedures

1. Replacement for the power IC and regulator transistor

- Follow the **Step 1** ~ **Step 3** of the item 1 in checking procedure for each P.C.B. on page 15.
- Follow the **Step 1** ~ **Step 11** of the item 3 in checking procedure for each P.C.B. on pages 16 and 17.

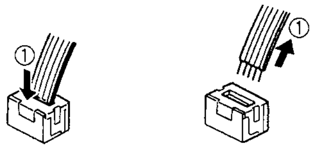
Step 1

Remove the flat cables from connectors.

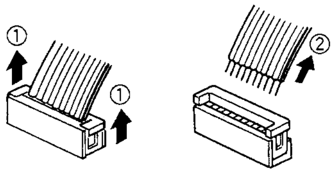

Connector (CN722)
Connector (W901A)
Connector (CN721)
Connector (CN904)
Connector (W902A)
Connector (W903A)

Removal of the connector

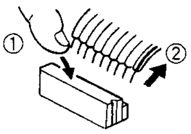
- Connector (CN904)

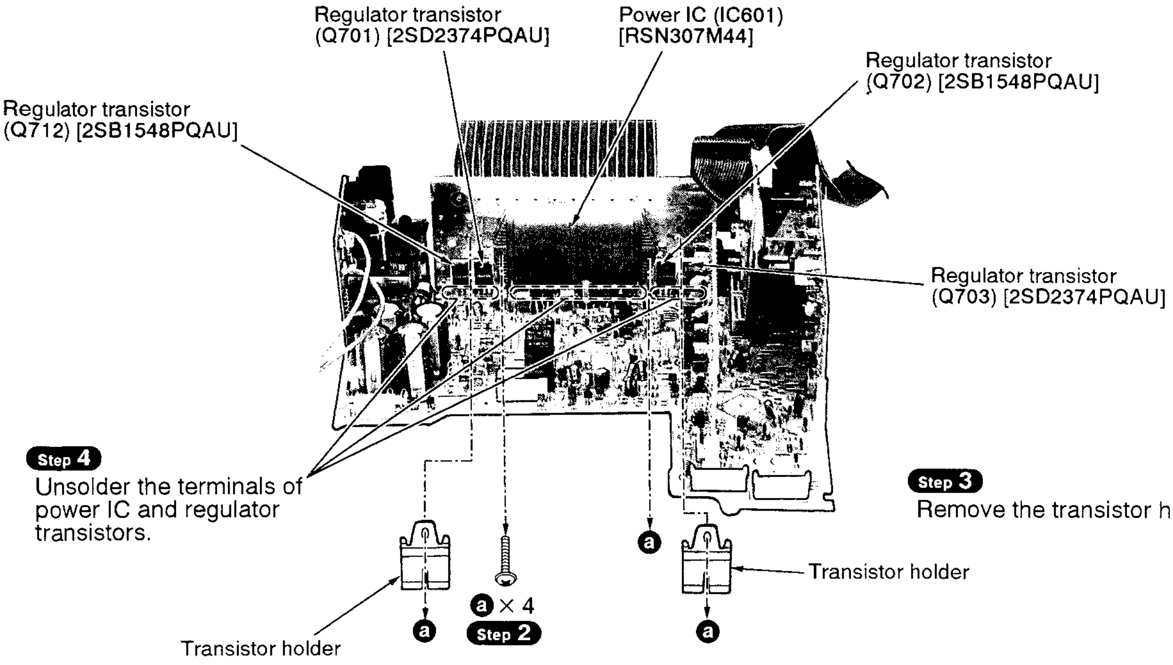


- Connectors (W901A, W902A, W903A)



- Connectors (CN721, CN722)




Regulator transistor (Q701) [2SD2374PQAU]
Power IC (IC601) [RSN307M44]
Regulator transistor (Q702) [2SB1548PQAU]
Regulator transistor (Q712) [2SB1548PQAU]
Regulator transistor (Q703) [2SD2374PQAU]
Transistor holder
Transistor holder
a
a × 4
Step 2
a
a

Step 4

Unsolder the terminals of power IC and regulator transistors.

Step 3

Remove the transistor holder.

NOTE

When mounting the power IC or regulator transistor apply silicone conpound (RFKX0002) to the rear side of power IC or regulator transistors.

■ To Supply Power Source

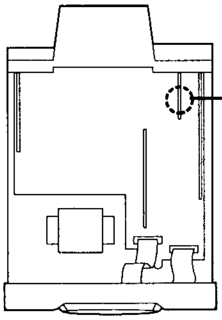
Power Supply to This Unit Alone

1. Short the section between **7 pin** and **10 pin** of the connector **W202** in Fig. 1.
2. Connect this unit to an AC Power Cord.
   (This unit come to stand-by mode.)
3. Turn the unit ON.

To check Operation

1. Set this unit to Power ON mode.
2. Input a signal and confirm it to be outputted from the speaker terminal.

	INPUT	OUTPUT
L-ch	VDP(AUX) or VCR(EXT)	L-ch speaker terminal
R-ch	VDP(AUX) or VCR(EXT)	L-ch speaker terminal
Surround	VDP(AUX) or VCR(EXT)	Surround speaker terminal
Center	VDP(AUX) or VCR(EXT)	Center speaker terminal



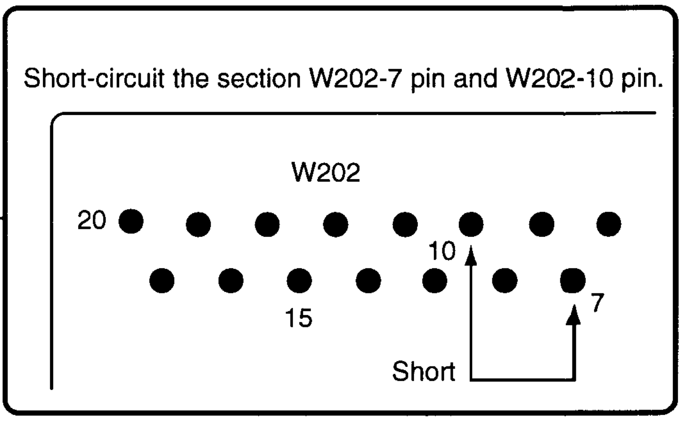


Fig. 1

■ Measurements and Adjustments [For (EG) and (EP) areas]

Measuring Instruments and Special Tools

- FM signal generator (FM-SG)
- RDS modulator
- AC electronic voltmeter (AC EVM)*(*Min. 0.3 mV measurable)
- 75 Ω coaxial cable

RDS (Radio Data System) BPF Adjustment

1. Test equipment connection is shown in Fig. 2.
2. Set the unit to "**FM**" mode.
3. Set the radio frequency display and signal generator to **100.10 MHz**.
4. Adjust **VR151** so that the **TP150** output is maximized.

How to make simple adjustment without using a RDS modulator

1. Tuner into a FM broadcast with a RDS signal transmitted from a FM station whose electric field intensity is more than 50 dB.
2. Adjust **VR151** so that the **TP150** output is maximized.

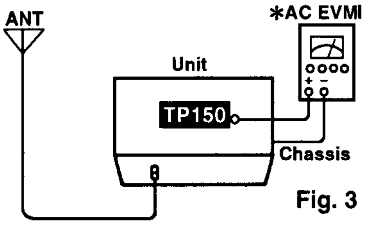


Fig. 3

FM Signal Generator Condition

Modulation 100%
Modulation frequency .... 1 kHz
RDS modulation 2.7%
Output level .... 60 dB

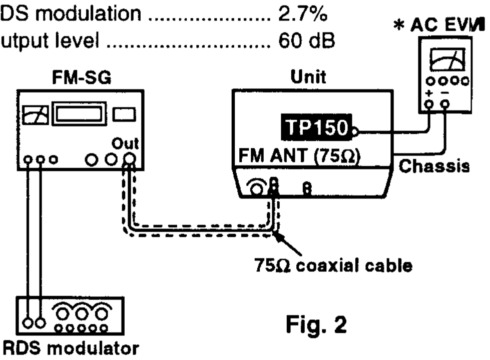


Fig. 2

Note:*Use the voltmeter measurable up to 0.3 mV at the minimum.

• What is RDS (Radio Data System)?

RDS is a multiplex broadcasting system which adds a variety of message signal to the audio signals of FM broadcasts.
This unit can utilize the following signals among the various RDS signals.

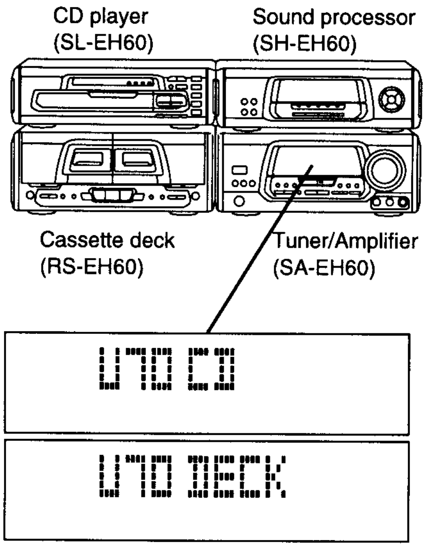
RDS messages used by this unit

- **PS** (Program service name)
  Name of the broadcast station
- **PTY** (Program type)
  Identification signal for program types such as news and sport

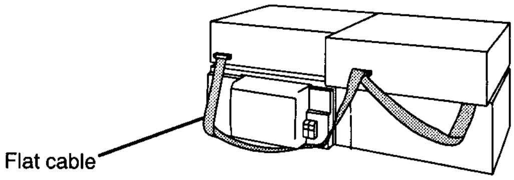
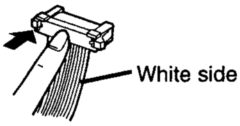
Note
"PTY" may not be available in some areas.

■About the Self-Diagnostic Mode

This unit is equipped with a self-diagnostic function which, in the event of a malfunction, automatically displays a code indicating the nature of the malfunction. Use this self-diagnostic function when servicing the unit.

Display method	Display location
To display the malfunction code U-70 CD: U-70 DECK: ..... Automatically displays on the tuner/sound processor when a malfunction occurs. F-61 .... Automatically displays on the tuner/sound processor when a malfunction occurs. **To return to the normal display** **1. For U-70 CD/U-70 DECK:** ● Press an any operation button on the tuner/amplifier. ● To re-display the code, switch the power off (POWER STANDBY button), and then switch power back on again. **2. For F-61:** ● If "F-61" is displayed, the power will automatically be switched off and the standby indicator will light up. ● "F-61" will be displayed for 3 seconds, and then the clock will be displayed. ● To re-display the code, switch the power on. "F-61" will be re-displayed, and then after 3 seconds the clock will be displayed and the power will automatically switch off.	 CD player (SL-EH60) Sound processor (SH-EH60) Cassette deck (RS-EH60) Tuner/Amplifier (SA-EH60) U70 CD U70 DECK

Display contents

Display code	Problem or condition	Correction procedure
U-70 CD **U-70 DECK** (displayed automatically)	A bus-line communications error has occurred as a result of the flat cables being inserted incorrectly, thus preventing the system from operating. 1.If "U-70" is displayed on the tuner/amplifier, the tape deck or CD Changer cannot be operated by remote control.	 1. To check for correct insertion of the flat cables. ①Insert each connector until you hear a click. ②Insert the flat cables at the back of the unit in the order indicated. Make sure the white side of the cable is on your right side.  2. Breakage of flat cable. (Check and replace as necessary.) 3. If the problem is not corrected by items (1.) and (2.) above, this indicates a faulty IC. **SA-EH60:** IC901 (M38199MF100K) **SL-EH60:** IC901 (M38027MB163F) **RS-EH60:** IC701 (M37471M4660F) Check these IC's and replace as necessary.
F-61	When the power switch is switched on, it automatically switches back off, making it impossible to switch power on.	● Faulty Tuner/Amplifier (SA-EH60) output IC (IC601). (When a DC voltage is applied to the speaker terminals.)

■ Schematic Diagram

Page

A TUNER CIRCUIT .... 22 ~ 27

B OPERATION CIRCUIT .... 28 ~ 30

C MIC JACK CIRCUIT 30

D DOLBY PROLOGIC CIRCUIT 31, 32

E IN/OUT TERMINAL CIRCUIT 33

F MAIN CIRCUIT .... 33 ~ 38

G POWER SUPPLY CIRCUIT 38

H POWER TRANSFORMER (A) CIRCUIT 38

I POWER TRANSFORMER (B) CIRCUIT 38

For (GC) area only Page

G POWER SUPPLY CIRCUIT 39

H POWER TRANSFORMER (A) CIRCUIT 39

I POWER TRANSFORMER (B) CIRCUIT 39

For (EG),(EP) areas

J RDS CIRCUIT 40

- **This schematic diagram may be modified at any time with the development of new technology.**

Notes:

- **S901** : Power "STANDBY ⏻ /ON" switch (POWER STANDBY ⏻ /ON)
- **S902** : Clock/timer switch (CLOCK/TIMER)
- **S903** : Record timer switch (◷ REC)
- **S904** : Play timer switch (◷ PLAY)
- **S905** : Tuning mode select switch (TUNING MODE)
- **S906** : Set switch (SET)
- **S907** : FM mode select switch (FM AUTO/MONO)
- **S908** : Source input select switch (INPUT SELECTOR)
- **S909** : Tuning down switch (TUNING ∨)
- **S910** : Tuning up switch (TUNING ∧)
- **S911** : Tuner/band select switch (TUNER/BAND)
- **S912** : V.bass switch (V.BASS)
- **VR901** : Volume control (VOLUME)

For (EG) and (EP) areas

- **S913** : RDS display mode select switch (PS)
- **S914** : RDS display mode select switch (PTY)
- **VR151** : RDS adjustment VR

For (GC) and (GN) areas

- **S913** : Karaoke switch (KARAOKE)
- **S914** : Echo switch (ECHO)
- **VR401** : Microphone volume control (MIC VOL)

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  No mark: Power ON

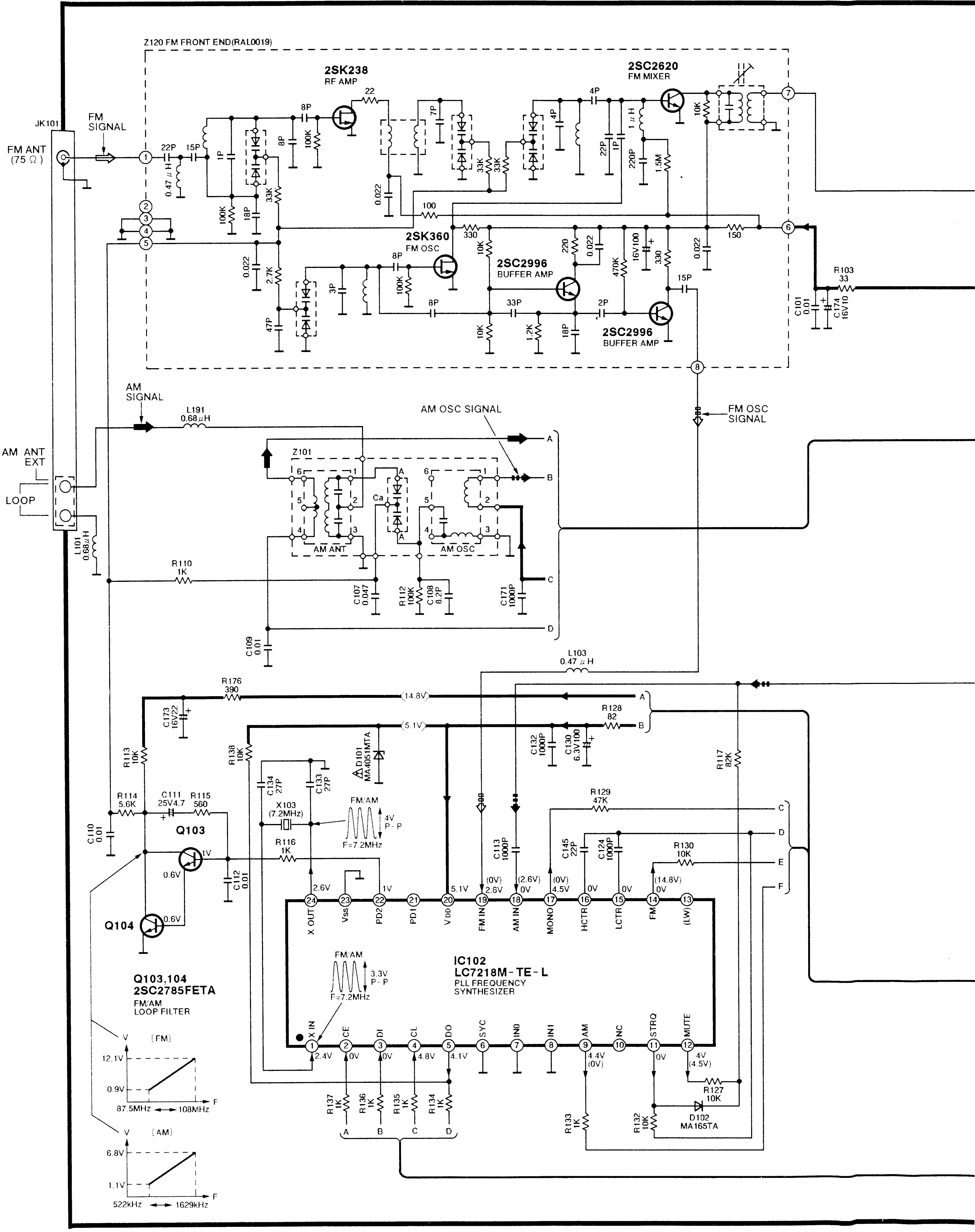
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

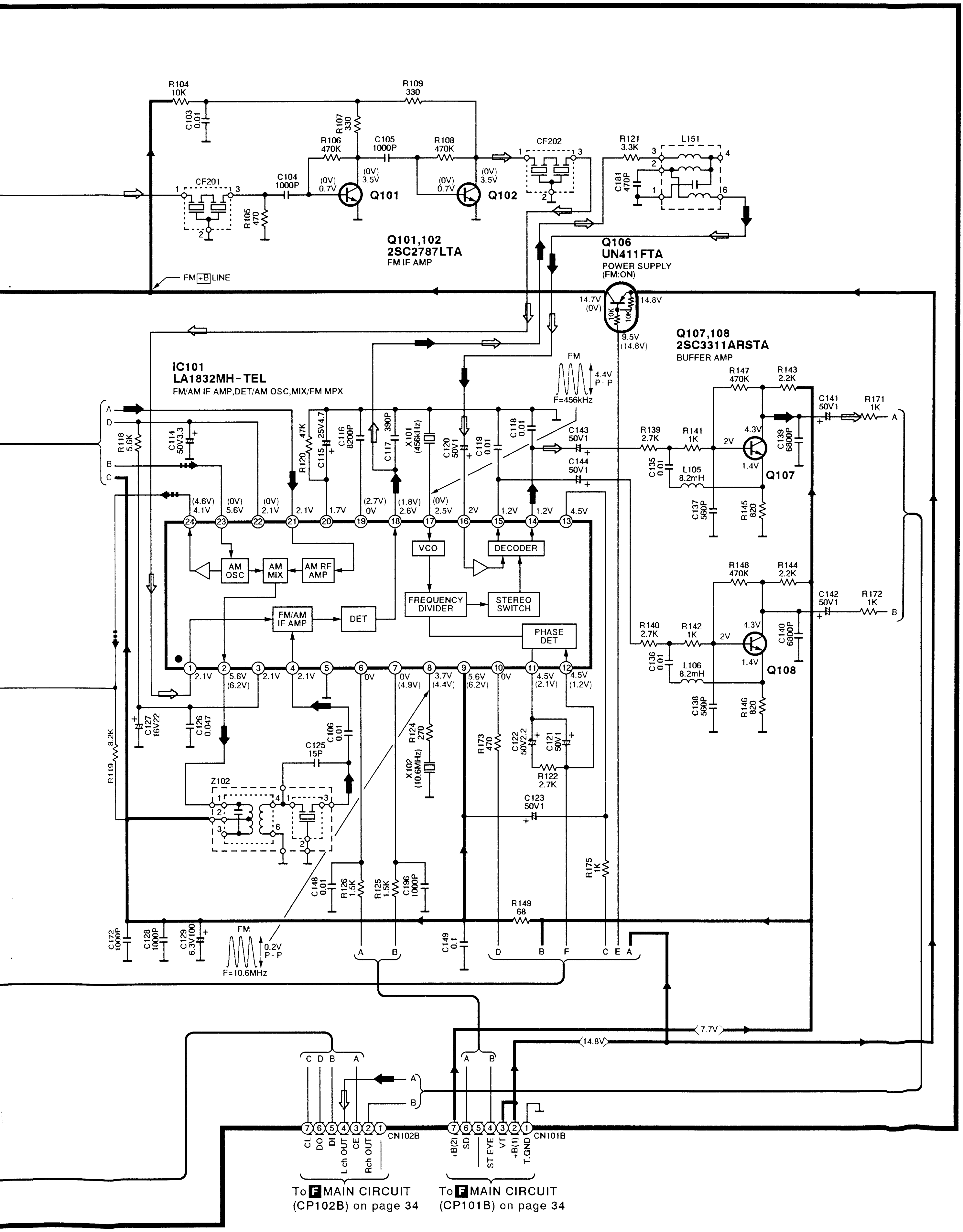
- **Voltage and signal line**

━━➤━━	: Positive voltage line	▪▪▪▪➤▪▪▪▪	:Negative voltage line
➡	: AM signal Line	▥⇨	:Mic signal Line
▪▪▪➡	: AM OSC signal line	▨⇨	:Surround Speaker Drive signal line
⇨	: FM signal line	▬➡	:Center Speaker Drive signal line
□□□⇨	: FM OSC signal line		

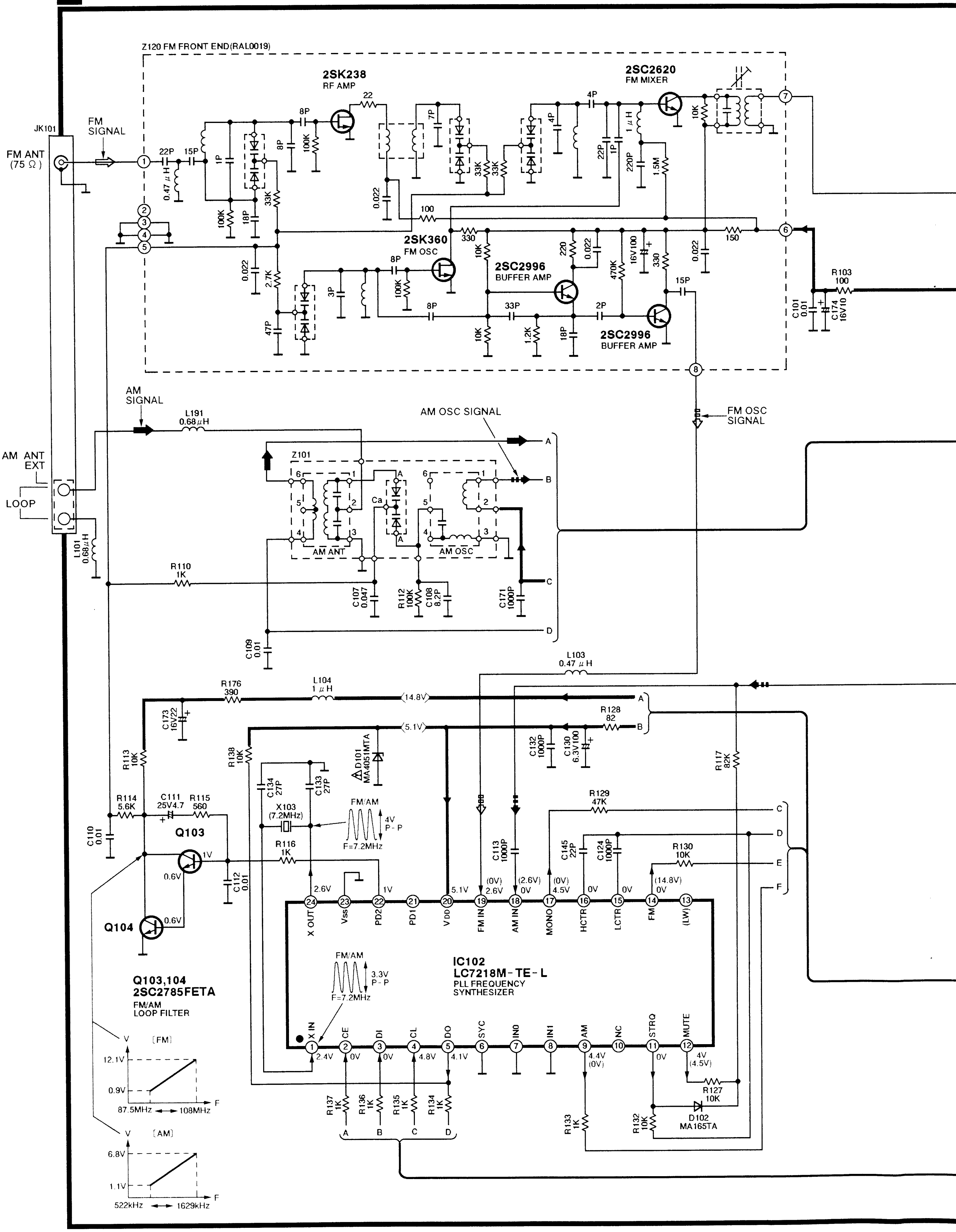
A TUNER CIRCUIT For 〔E,EB〕 areas. (P.C.Board:on page 42)


Z120 FM FRONT END(RAL0019)
2SK238
RF AMP
2SC2620
FM MIXER
2SK360
FM OSC
2SC2996
BUFFER AMP
2SC2996
BUFFER AMP
JK101
FM ANT
(75 Ω)
FM SIGNAL
AM SIGNAL
L191
0.68μH
AM ANT
EXT
LOOP
L101
0.68μH
R110
1K
Z101
AM ANT
AM OSC
Ca
AM OSC SIGNAL
FM OSC SIGNAL
C107
0.047
R112
100K
C108
8.2P
C171
1000P
C109
0.01
C101
0.01
C174
16V10
R103
33
L103
0.47 μH
R176
390
(14.8V)
(5.1V)
C173
16V22
R113
10K
R138
10K
D101
MA4051MTA
C134
27P
C133
27P
X103
(7.2MHz)
FM/AM
4V
P-P
F=7.2MHz
R128
82
C132
1000P
C130
6.3V100
R117
82K
R129
47K
C113
1000P
C145
22P
C124
1000P
R130
10K
R114
5.6K
C111
25V4.7
R115
560
C110
0.01
Q103
Q104
R116
1K
C112
0.01
IC102
LC7218M-TE-L
PLL FREQUENCY
SYNTHESIZER
X OUT
Vss
PD2
PD1
VDD
FM IN
AM IN
MONO
HCTR
LCTR
FM
(LW)
X IN
CE
DI
CL
DO
SYC
IN0
IN1
AM
NC
STRQ
MUTE
FM/AM
3.3V
P-P
F=7.2MHz
R137
1K
R136
1K
R135
1K
R134
1K
R133
1K
R132
10K
R127
10K
D102
MA165TA
Q103,104
2SC2785FETA
FM/AM
LOOP FILTER
V
[FM]
12.1V
0.9V
87.5MHz ◄─► 108MHz
F
V
[AM]
6.8V
1.1V
522kHz ◄─► 1629kHz
F

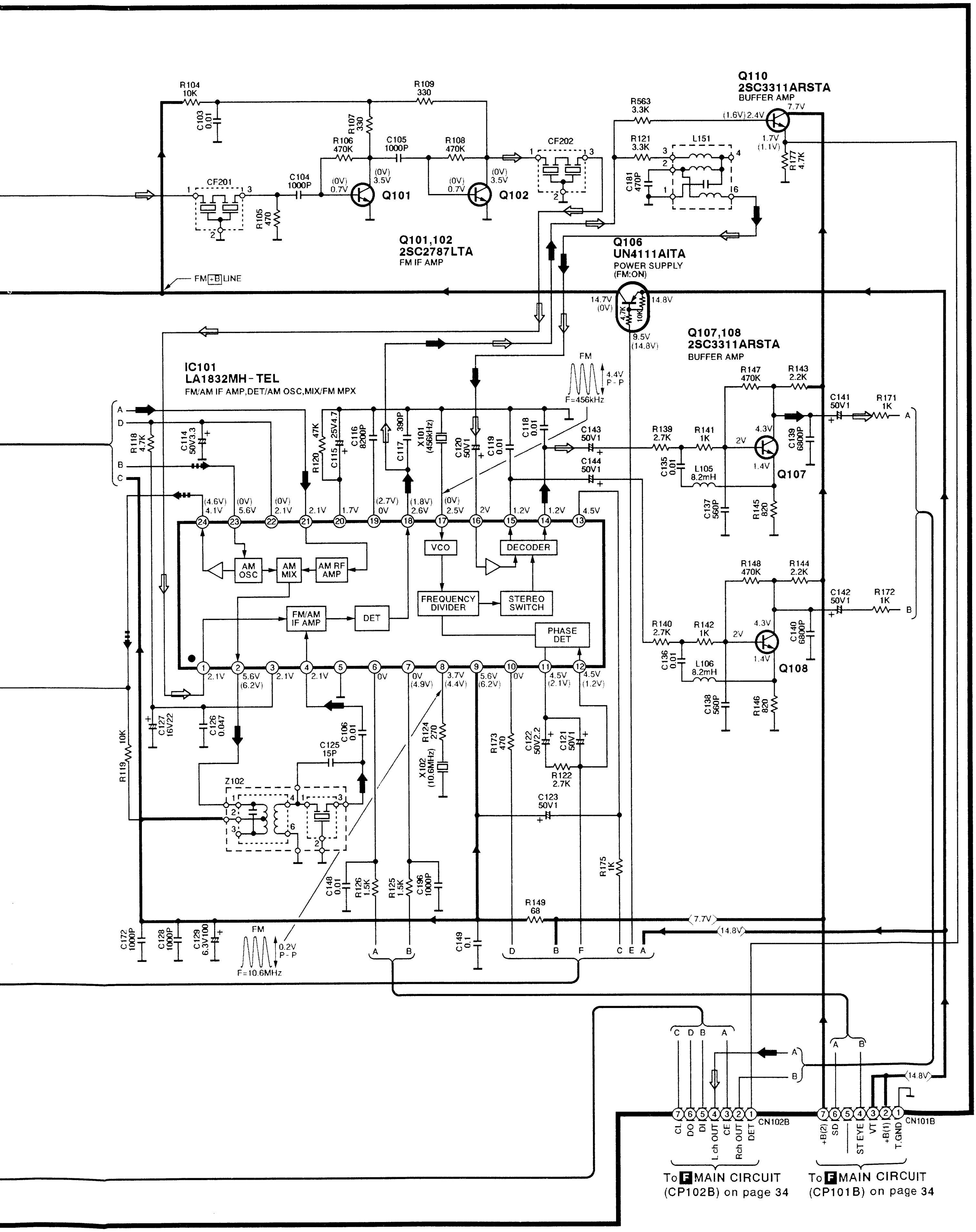
→ : Positive voltage Line
➡ : AM signal Line
▪▪➡ : AM OSC signal Line
⇨ : FM signal Line
□□⇨ : FM OSC signal Line


R104 10K
C103 0.01
R107 330
R109 330
R106 470K
C105 1000P
R108 470K
CF202
R121 3.3K
L151
C181 470P
CF201
C104 1000P
R105 470
(0V) 0.7V
(0V) 3.5V
Q101
Q102
Q101,102
2SC2787LTA
FM IF AMP
Q106
UN411FTA
POWER SUPPLY
(FM:ON)
14.7V (0V)
14.8V
9.5V (14.8V)
10K
FM+B LINE
Q107,108
2SC3311ARSTA
BUFFER AMP
IC101
LA1832MH-TEL
FM/AM IF AMP,DET/AM OSC,MIX/FM MPX
FM
4.4V P-P
F=456kHz
R118 5.6K
C114 50V3.3
R120 47K
C115 25V4.7
C116 8200P
C117 390P
X101 (456KHz)
C120 50V1
C119 0.01
C118 0.01
C143 50V1
C144 50V1
R147 470K
R143 2.2K
C141 50V1
R171 1K
R139 2.7K
R141 1K
C135 0.01
L105 8.2mH
C139 6800P
4.3V
2V
1.4V
Q107
C137 560P
R145 820
R148 470K
R144 2.2K
C142 50V1
R172 1K
R140 2.7K
R142 1K
C136 0.01
L106 8.2mH
C140 6800P
Q108
C138 560P
R146 820
(4.6V) 4.1V
(0V) 5.6V
(0V) 2.1V
2.1V
1.7V
(2.7V) 0V
(1.8V) 2.6V
(0V) 2.5V
2V
1.2V
1.2V
4.5V
AM OSC
AM MIX
AM RF AMP
VCO
DECODER
FREQUENCY DIVIDER
STEREO SWITCH
FM/AM IF AMP
DET
PHASE DET
2.1V
5.6V (6.2V)
2.1V
2.1V
0V
0V (4.9V)
3.7V (4.4V)
5.6V (6.2V)
0V
4.5V (2.1V)
4.5V (1.2V)
C127 16V22
C126 0.047
R119 8.2K
C125 15P
C106 0.01
Z102
R124 270
X102 (10.6MHz)
R173 470
C122 50V2.2
C121 50V1
R122 2.7K
C123 50V1
R175 1K
C148 0.01
R126 1.5K
R125 1.5K
C196 1000P
R149 68
C172 1000P
C128 1000P
C129 6.3V100
FM
0.2V P-P
F=10.6MHz
C149 0.1
A B D B F C E A
7.7V
14.8V
C D B A
A B
CN102B
CL
DO
DI
Lch OUT
CE
Rch OUT
CN101B
+B(2)
SD
ST EYE
VT
+B(1)
T.GND
To F MAIN CIRCUIT (CP102B) on page 34
To F MAIN CIRCUIT (CP101B) on page 34

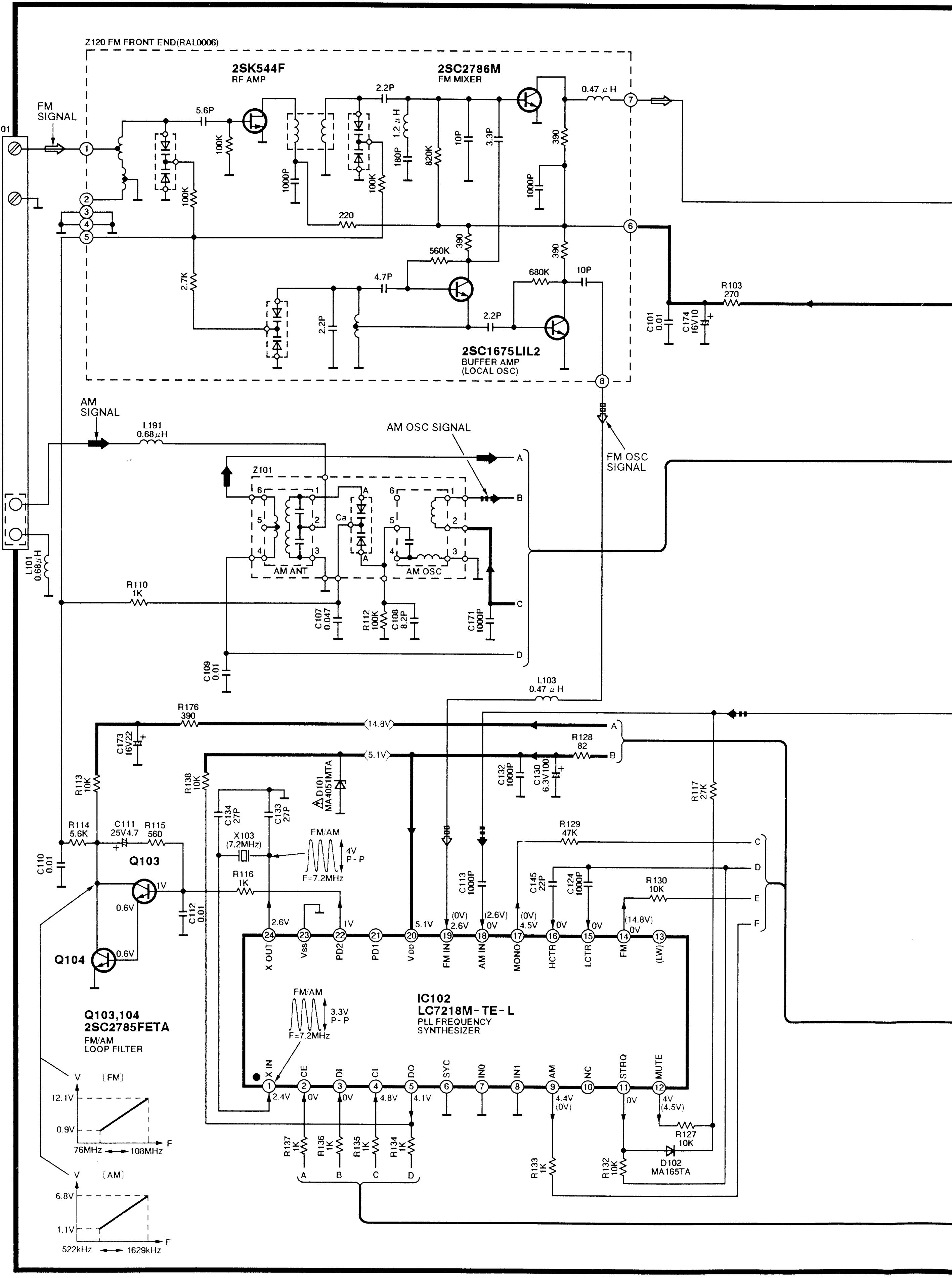
A TUNER CIRCUIT For [EG,EP] areas. (P.C.Board:on page 42)


Z120 FM FRONT END(RAL0019)
2SK238
RF AMP
2SC2620
FM MIXER
2SK360
FM OSC
2SC2996
BUFFER AMP
2SC2996
BUFFER AMP
JK101
FM ANT
(75 Ω)
FM SIGNAL
AM SIGNAL
AM ANT
EXT
LOOP
L191
0.68μH
L101
0.68μH
R110
1K
Z101
AM ANT
AM OSC
AM OSC SIGNAL
FM OSC SIGNAL
R103
100
C101
0.01
C174
16V10
C107
0.047
R112
100K
C108
8.2P
C171
1000P
C109
0.01
L103
0.47 μH
R176
390
L104
1 μH
(14.8V)
(5.1V)
C173
16V22
R113
10K
R138
10K
D101
MA4051MTA
C132
1000P
C130
6.3V100
R128
82
R117
82K
C134
27P
C133
27P
X103
(7.2MHz)
FM/AM
4V
P-P
F=7.2MHz
R114
5.6K
C111
25V4.7
R115
560
C110
0.01
Q103
R116
1K
C112
0.01
Q104
R129
47K
C113
1000P
C145
22P
C124
1000P
R130
10K
IC102
LC7218M-TE-L
PLL FREQUENCY
SYNTHESIZER
FM/AM
3.3V
P-P
F=7.2MHz
X OUT
Vss
PD2
PD1
VDD
FM IN
AM IN
MONO
HCTR
LCTR
FM
(LW)
X IN
CE
DI
CL
DO
SYC
IN0
IN1
AM
NC
STRQ
MUTE
R137 1K
R136 1K
R135 1K
R134 1K
R133 1K
R132 10K
R127 10K
D102
MA165TA
Q103,104
2SC2785FETA
FM/AM
LOOP FILTER
V [FM]
12.1V
0.9V
87.5MHz ↔ 108MHz
F
V [AM]
6.8V
1.1V
522kHz ↔ 1629kHz
F

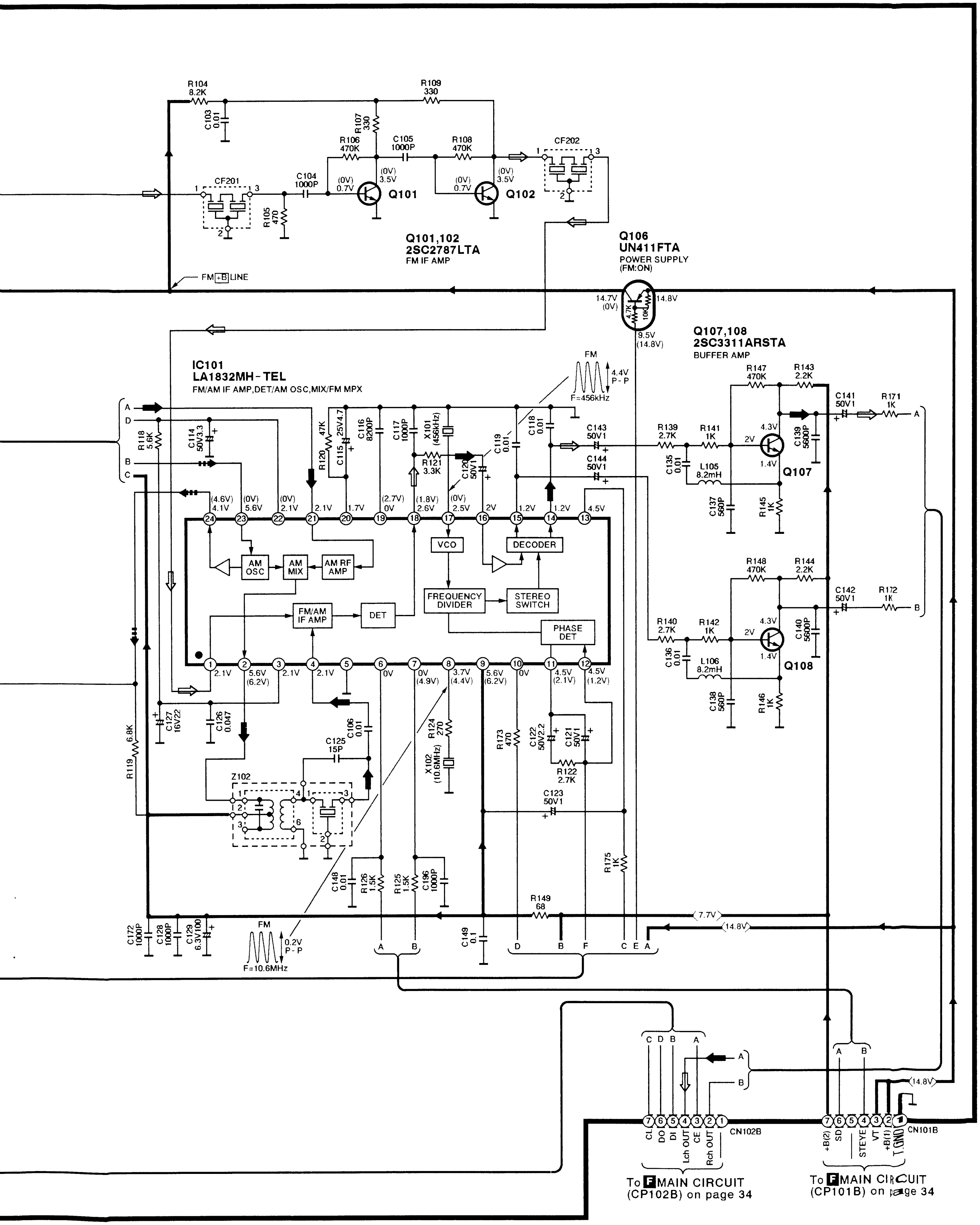
: Positive voltage Line
: AM signal Line
: AM OSC signal Line
: FM signal Line
: FM OSC signal Line


R104 10K
C103 0.01
R109 330
R107 330
R106 470K
C105 1000P
R108 470K
CF201
C104 1000P
R105 470
(0V) 0.7V
(0V) 3.5V
Q101
Q102
CF202
Q101,102
2SC2787LTA
FM IF AMP
FM +B LINE
R563 3.3K
R121 3.3K
L151
C181 470P
Q110
2SC3311ARSTA
BUFFER AMP
(1.6V) 2.4V
7.7V
1.7V (1.1V)
R177 4.7K
Q106
UN4111AITA
POWER SUPPLY
(FM:ON)
14.7V (0V)
14.8V
4.7K
10K
9.5V (14.8V)
Q107,108
2SC3311ARSTA
BUFFER AMP
IC101
LA1832MH-TEL
FM/AM IF AMP,DET/AM OSC,MIX/FM MPX
FM
4.4V P-P
F=456kHz
R118 4.7K
C114 50V3.3
R120 47K
C115 25V4.7
C116 8200P
C117 390P
X101 (456kHz)
C120 50V1
C119 0.01
C118 0.01
C143 50V1
C144 50V1
R147 470K
R143 2.2K
C141 50V1
R171 1K
R139 2.7K
R141 1K
C135 0.01
L105 8.2mH
C137 560P
R145 820
C139 6800P
Q107
4.3V
2V
1.4V
(4.6V) 4.1V
(0V) 5.6V
(0V) 2.1V
2.1V
1.7V
(2.7V) 0V
(1.8V) 2.6V
(0V) 2.5V
2V
1.2V
1.2V
4.5V
AM OSC
AM MIX
AM RF AMP
VCO
DECODER
FREQUENCY DIVIDER
STEREO SWITCH
FM/AM IF AMP
DET
PHASE DET
2.1V
5.6V (6.2V)
2.1V
2.1V
0V
0V (4.9V)
3.7V (4.4V)
5.6V (6.2V)
0V
4.5V (2.1V)
4.5V (1.2V)
R148 470K
R144 2.2K
C142 50V1
R172 1K
R140 2.7K
R142 1K
C136 0.01
L106 8.2mH
C138 560P
R146 820
C140 6800P
Q108
R119 10K
C127 16V22
C126 0.047
C106 0.01
C125 15P
Z102
R124 270
X102 (10.6MHz)
R173 470
C122 50V2.2
C121 50V1
R122 2.7K
C123 50V1
R175 1K
C148 0.01
R126 1.5K
R125 1.5K
C196 1000P
R149 68
(7.7V)
(14.8V)
C172 1000P
C128 1000P
C129 6.3V100
FM
0.2V P-P
F=10.6MHz
C149 0.1
A B
D B F C E A
C D B A
A B
(14.8V)
CN102B
CL DO DI L ch OUT CE Rch OUT DET
CN101B
+B(2) SD ST EYE VT +B(1) T.GND
To F MAIN CIRCUIT (CP102B) on page 34
To F MAIN CIRCUIT (CP101B) on page 34

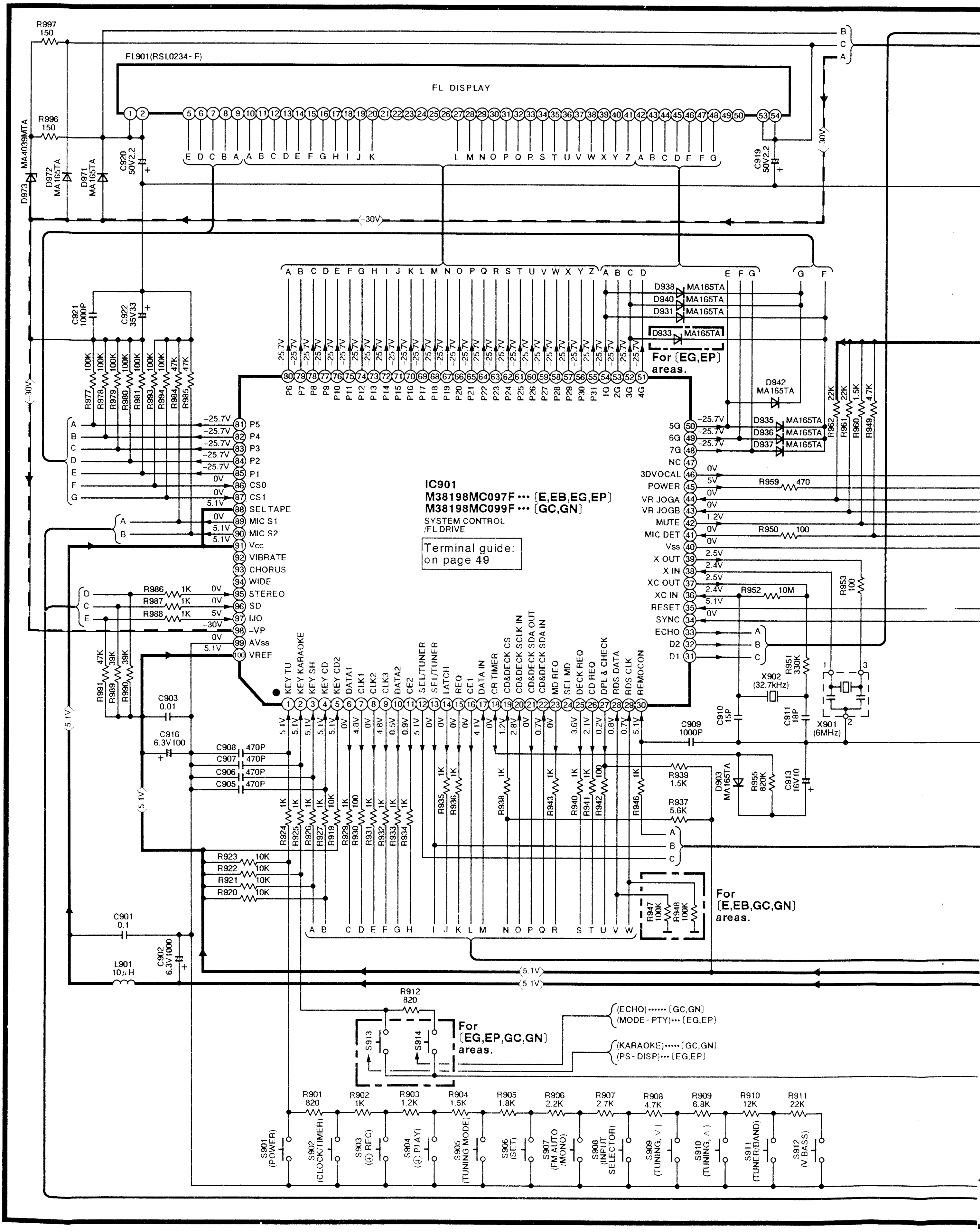
A TUNER CIRCUIT For [GC,GN] areas. (P.C.Board:on page 43)


Z120 FM FRONT END(RAL0006)
2SK544F
RF AMP
2SC2786M
FM MIXER
2SC1675LIL2
BUFFER AMP
(LOCAL OSC)
FM ANT
75 Ω
GND
JK101
FM SIGNAL
5.6P
2.2P
0.47 μH
1.2 μH
180P
820K
10P
3.3P
390
1000P
100K
220
560K
390
680K
10P
4.7P
2.7K
2.2P
2.2P
C101 0.01
C174 16V10
R103 270
AM SIGNAL
L191 0.68μH
AM OSC SIGNAL
FM OSC SIGNAL
AM ANT EXT
LOOP
Z101
AM ANT
AM OSC
Ca
L101 0.68μH
R110 1K
C107 0.047
R112 100K
C108 8.2P
C171 1000P
C109 0.01
L103 0.47 μH
R176 390
C173 16V22
(14.8V)
(5.1V)
R128 82
R113 10K
R138 10K
D101 MA4051MTA
C132 1000P
C130 6.3V100
R117 27K
C134 27P
C133 27P
X103 (7.2MHz)
FM/AM
4V P-P
F=7.2MHz
R129 47K
R114 5.6K
C111 25V4.7
R115 560
C110 0.01
Q103
R116 1K
C112 0.01
C113 1000P
C145 22P
C124 1000P
R130 10K
Q104
0.6V
1V
0.6V
2.6V
1V
5.1V
(0V) 2.6V
(2.6V) 0V
(0V) 4.5V
0V
0V
(14.8V) 0V
X OUT
Vss
PD2
PD1
VDD
FM IN
AM IN
MONO
HCTR
LCTR
FM
(LW)
IC102
LC7218M-TE-L
PLL FREQUENCY SYNTHESIZER
FM/AM
3.3V P-P
F=7.2MHz
Q103,104
2SC2785FETA
FM/AM LOOP FILTER
X IN
CE
DI
CL
DO
SYC
IN0
IN1
AM
NC
STRQ
MUTE
2.4V
0V
0V
4.8V
4.1V
4.4V (0V)
0V
4V (4.5V)
R127 10K
D102 MA165TA
R137 1K
R136 1K
R135 1K
R134 1K
R133 1K
R132 10K
A
B
C
D
E
F
V
[FM]
12.1V
0.9V
76MHz ←→ 108MHz
[AM]
6.8V
1.1V
522kHz ←→ 1629kHz

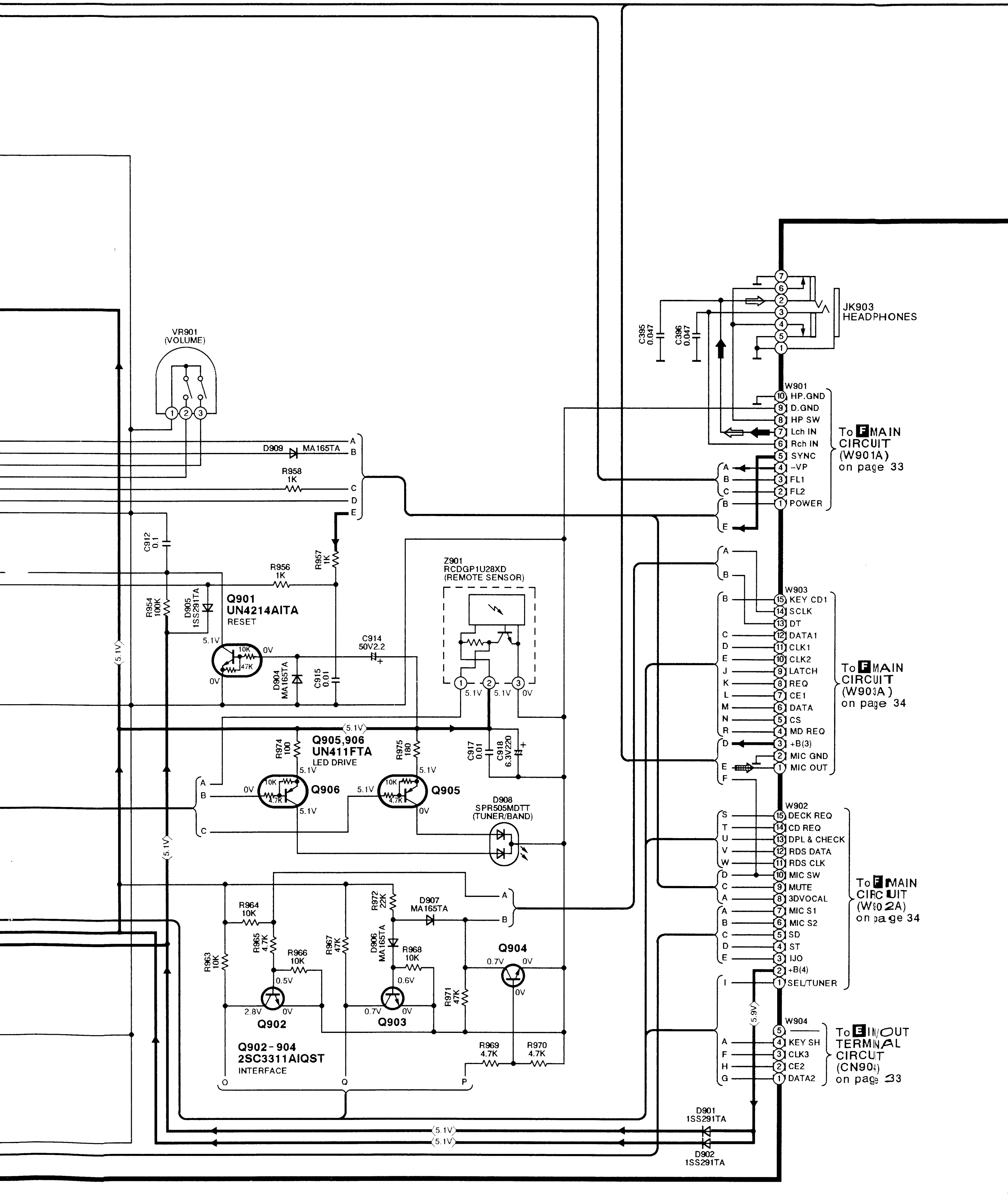
→ : Positive voltage Line
➡ : AM signal Line
▪▪➡ : AM OSC signal Line
⇨ : FM signal Line
□□⇨ : FM OSC signal Line


R104 8.2K
C103 0.01
R109 330
R107 330
R106 470K
C105 1000P
R108 470K
CF202
CF201
C104 1000P
R105 470
Q101
Q102
Q101,102 2SC2787LTA FM IF AMP
Q106 UN411FTA POWER SUPPLY (FM:ON)
FM+B LINE
14.7V (0V)
14.8V
9.5V (14.8V)
4.7K
10K
Q107,108 2SC3311ARSTA BUFFER AMP
IC101 LA1832MH-TEL FM/AM IF AMP,DET/AM OSC,MIX/FM MPX
FM 4.4V P-P F=456kHz
R118 5.6K
C114 50V3.3
R120 47K
C115 25V4.7
C116 8200P
C117 1000P
X101 (456kHz)
R121 3.3K
C120 50V1
C119 0.01
C118 0.01
C143 50V1
C144 50V1
R139 2.7K
R141 1K
C135 0.01
L105 8.2mH
C137 560P
R145 1K
R147 470K
R143 2.2K
C139 5600P
C141 50V1
R171 1K
Q107
R148 470K
R144 2.2K
C142 50V1
R172 1K
R140 2.7K
R142 1K
C136 0.01
L106 8.2mH
C138 560P
R146 1K
C140 5600P
Q108
4.3V 2V 1.4V
AM OSC
AM MIX
AM RF AMP
FM/AM IF AMP
DET
VCO
FREQUENCY DIVIDER
STEREO SWITCH
DECODER
PHASE DET
R119 6.8K
C127 16V22
C126 0.047
C125 15P
C106 0.01
Z102
R124 270
X102 (10.6MHz)
R173 470
C122 50V2.2
C121 50V1
R122 2.7K
C123 50V1
R175 1K
C148 0.01
R126 1.5K
R125 1.5K
C196 1000P
R149 68
C149 0.1
C172 1000P
C128 1000P
C129 6.3V100
FM 0.2V P-P F=10.6MHz
7.7V
14.8V
CN102B
CL DO DI CE Lch OUT Rch OUT
CN101B
+B(2) SD STEYE VT +B(1) T.GND
To F MAIN CIRCUIT (CP102B) on page 34
To F MAIN CIRCUIT (CP101B) on page 34

B OPERATION CIRCUIT (P.C.Board:on page 43)

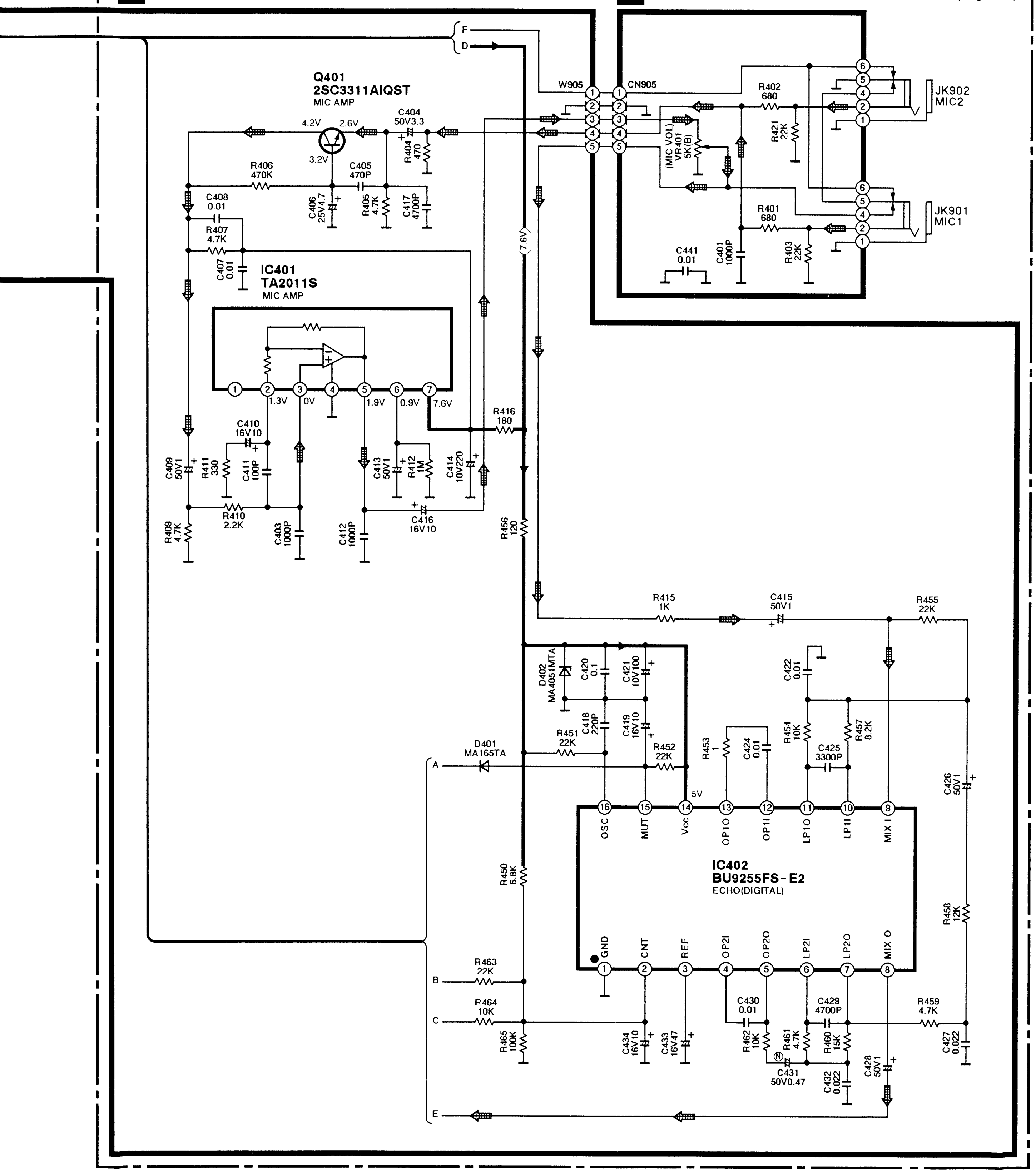

R997 150
FL901(RSL0234-F)
FL DISPLAY
R996 150
D973 MA4039MTA
D972 MA165TA
D971 MA165TA
C920 50V2.2
C919 50V2.2
(-30V)
C921 1000P
C922 35V33
R977 100K
R978 100K
R979 100K
R980 100K
R981 100K
R993 100K
R994 100K
R984 47K
R985 47K
D938 MA165TA
D940 MA165TA
D931 MA165TA
D933 MA165TA
For (EG,EP) areas.
D942 MA165TA
D935 MA165TA
D936 MA165TA
D937 MA165TA
R962 22K
R961 22K
R960 1.5K
R949 4.7K
IC901
M38198MC097F ··· (E,EB,EG,EP)
M38198MC099F ··· (GC,GN)
SYSTEM CONTROL /FL DRIVE
Terminal guide: on page 49
P5
P4
P3
P2
P1
CS0
CS1
SEL TAPE
MIC S1
MIC S2
Vcc
VIBRATE
CHORUS
WIDE
STEREO
SD
IJO
-VP
AVss
VREF
5G
6G
7G
NC
3DVOCAL
POWER
VR JOGA
VR JOGB
MUTE
MIC DET
Vss
X OUT
X IN
XC OUT
XC IN
RESET
SYNC
ECHO
D2
D1
R959 470
R950 100
R952 10M
R953 10K
R951 330K
X902 (32.7kHz)
X901 (6MHz)
C910 15P
C911 18P
C909 1000P
R986 1K
R987 1K
R988 1K
R991 47K
R989 39K
R990 39K
C903 0.01
C916 6.3V100
C908 470P
C907 470P
C906 470P
C905 470P
KEY TU
KEY KARAOKE
KEY SH
KEY CD
KEY CD2
DATA1
CLK1
CLK2
CLK3
DATA2
CE2
SEL/TUNER
SEL/TUNER
LATCH
REQ
CE1
DATA IN
CR TIMER
CD&DECK CS
CD&DECK SCLK IN
CD&DECK SDA OUT
CD&DECK SDA IN
MD REQ
SEL MD
DECK REQ
CD REQ
DPL & CHECK
RDS DATA
RDS CLK
REMOCON
R924 1K
R925 1K
R926 1K
R927 1K
R919 10K
R929 100
R930 1K
R931 1K
R932 1K
R933 1K
R934 1K
R935 1K
R936 1K
R938 1K
R943 1K
R940 1K
R941 1K
R942 100
R946 1K
R939 1.5K
R937 5.6K
D903 MA165TA
R955 820K
C913 16V10
R923 10K
R922 10K
R921 10K
R920 10K
R947 100K
R948 100K
For (E,EB,GC,GN) areas.
C901 0.1
C902 6.3V1000
L901 10μH
(5.1V)
R912 820
S913
S914
For (EG,EP,GC,GN) areas.
(ECHO) ······ (GC,GN)
(MODE-PTY)··· (EG,EP)
(KARAOKE) ······ (GC,GN)
(PS-DISP)··· (EG,EP)
R901 820
R902 1K
R903 1.2K
R904 1.5K
R905 1.8K
R906 2.2K
R907 2.7K
R908 4.7K
R909 6.8K
R910 12K
R911 22K
S901 (POWER)
S902 (CLOCK/TIMER)
S903 (⊕ REC)
S904 (⊕ PLAY)
S905 (TUNING MODE)
S906 (SET)
S907 (FM AUTO /MONO)
S908 (INPUT SELECTOR)
S909 (TUNING, ∨)
S910 (TUNING, ∧)
S911 (TUNER/BAND)
S912 (V.BASS)

→ : Positive voltage Line
⇢ : Negative voltage Line
➡ : AM signal Line
▥ : Mic signal Line
⇨ : FM signal Line


VR901
(VOLUME)
D909 MA165TA
R958 1K
C912 0.1
R956 1K
R957 1K
R954 100K
D905 1SS291TA
Q901
UN4214AITA
RESET
5.1V
0V
10K
47K
D904 MA165TA
C915 0.01
C914 50V2.2
Z901
RCDGP1U28XD
(REMOTE SENSOR)
5.1V
Q905,906
UN411FTA
LED DRIVE
R974 100
R975 180
C917 0.01
C918 6.3V220
Q906
Q905
D908
SPR505MDTT
(TUNER/BAND)
R964 10K
R965 4.7K
R963 10K
R966 10K
R967 47K
R972 22K
D907 MA165TA
D906 MA165TA
R968 10K
Q904
R971 47K
0.5V
0.6V
0.7V
2.8V
Q902
Q903
Q902-904
2SC3311AIQST
INTERFACE
R969 4.7K
R970 4.7K
(5.9V)
D901
1SS291TA
D902
1SS291TA
C395 0.047
C396 0.047
JK903
HEADPHONES
W901
HP.GND
D.GND
HP SW
Lch IN
Rch IN
SYNC
-VP
FL1
FL2
POWER
To F MAIN CIRCUIT (W901A) on page 33
W903
KEY CD1
SCLK
DT
DATA1
CLK1
CLK2
LATCH
REQ
CE1
DATA
CS
MD REQ
+B(3)
MIC GND
MIC OUT
To F MAIN CIRCUIT (W903A) on page 34
W902
DECK REQ
CD REQ
DPL & CHECK
RDS DATA
RDS CLK
MIC SW
MUTE
3DVOCAL
MIC S1
MIC S2
SD
ST
IJO
+B(4)
SEL/TUNER
To F MAIN CIRCUIT (W902A) on page 34
W904
KEY SH
CLK3
CE2
DATA2
To E IN/OUT TERMINAL CIRCUIT (CN904) on page 33

B OPERATION CIRCUIT (P.C.Board:on page 43)

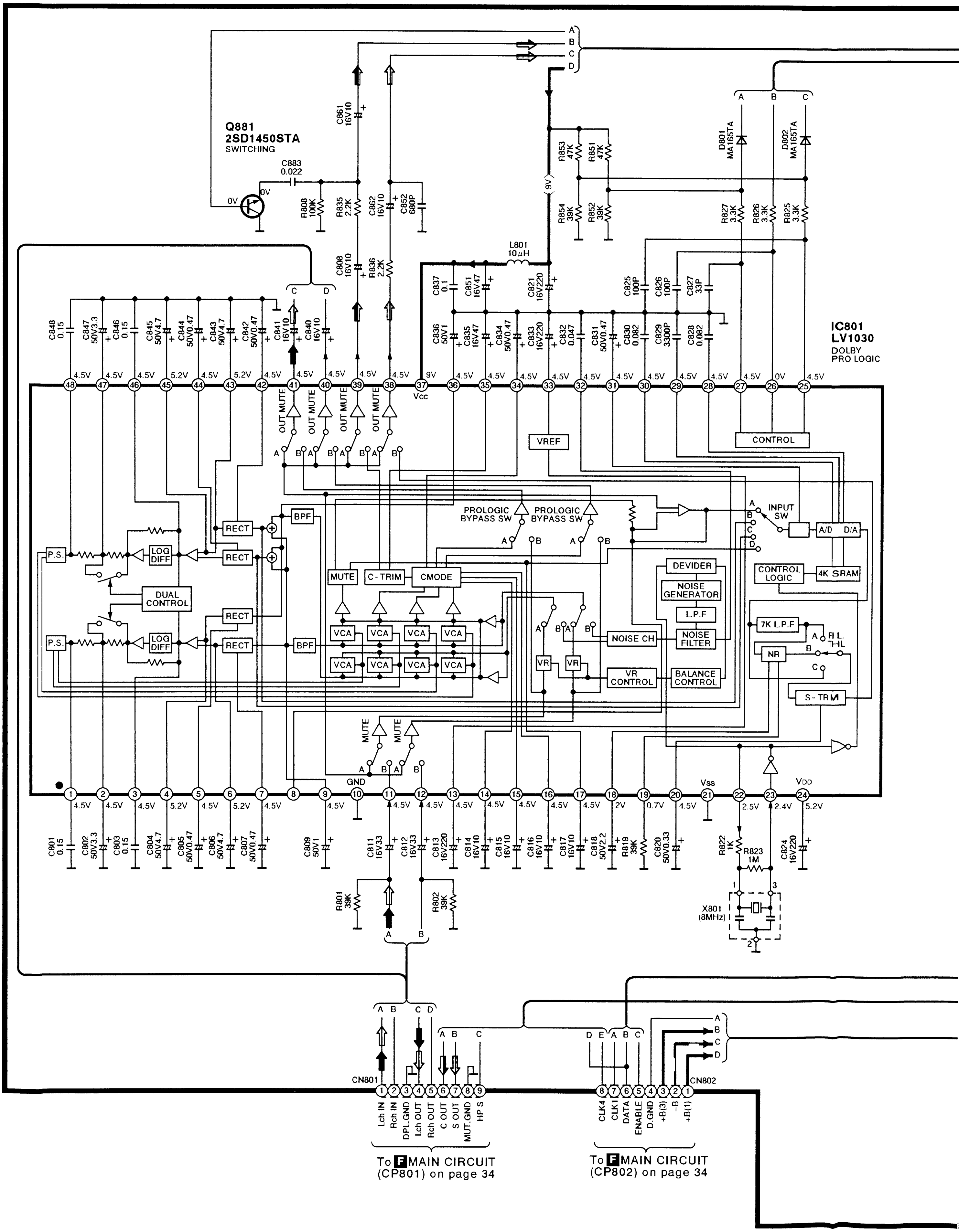
C MIC JACK CIRCUIT (P.C.Board:on page 44)


F
D
W905
CN905
Q401
2SC3311AIQST
MIC AMP
4.2V
2.6V
3.2V
C404
50V3.3
R404
470
R406
470K
C405
470P
C408
0.01
C406
25V4.7
R405
4.7K
C417
4700P
R407
4.7K
C407
0.01
IC401
TA2011S
MIC AMP
1.3V
0V
1.9V
0.9V
7.6V
(7.6V)
R416
180
C410
16V10
C409
50V1
R411
330
C411
100P
C413
50V1
R412
1M
C414
10V220
R410
2.2K
C416
16V10
R409
4.7K
C403
1000P
C412
1000P
R456
120
R402
680
R421
22K
(MIC VOL)
VR401
5K(B)
R401
680
C441
0.01
C401
1000P
R403
22K
JK902
MIC2
JK901
MIC1
R415
1K
C415
50V1
R455
22K
D402
MA4051MTA
C420
0.1
C421
10V100
C418
220P
C419
16V10
R451
22K
R452
22K
D401
MA165TA
A
5V
R453
1
C424
0.01
C422
0.01
R454
10K
C425
3300P
R457
8.2K
C426
50V1
OSC
MUT
Vcc
OP1O
OP1I
LP1O
LP1I
MIX I
IC402
BU9255FS-E2
ECHO(DIGITAL)
R450
6.8K
R458
12K
GND
CNT
REF
OP2I
OP2O
LP2I
LP2O
MIX O
B
R463
22K
C
R464
10K
R465
100K
C434
16V10
C433
16V47
C430
0.01
R462
10K
R461
4.7K
C431
50V0.47
C429
4700P
R460
15K
C432
0.022
C428
50V1
R459
4.7K
C427
0.022
E

For [GC,GN] areas.

▬▶▬ : Positive voltage Line
▪▪▶▪▪ : Negative voltage Line
▨⇨ : Surround Speaker signal Line
➡ : AM signal Line
⇨ : FM signal Line
▥▷ : Mic signal Line
➡ :Center Speaker Drive signal Line

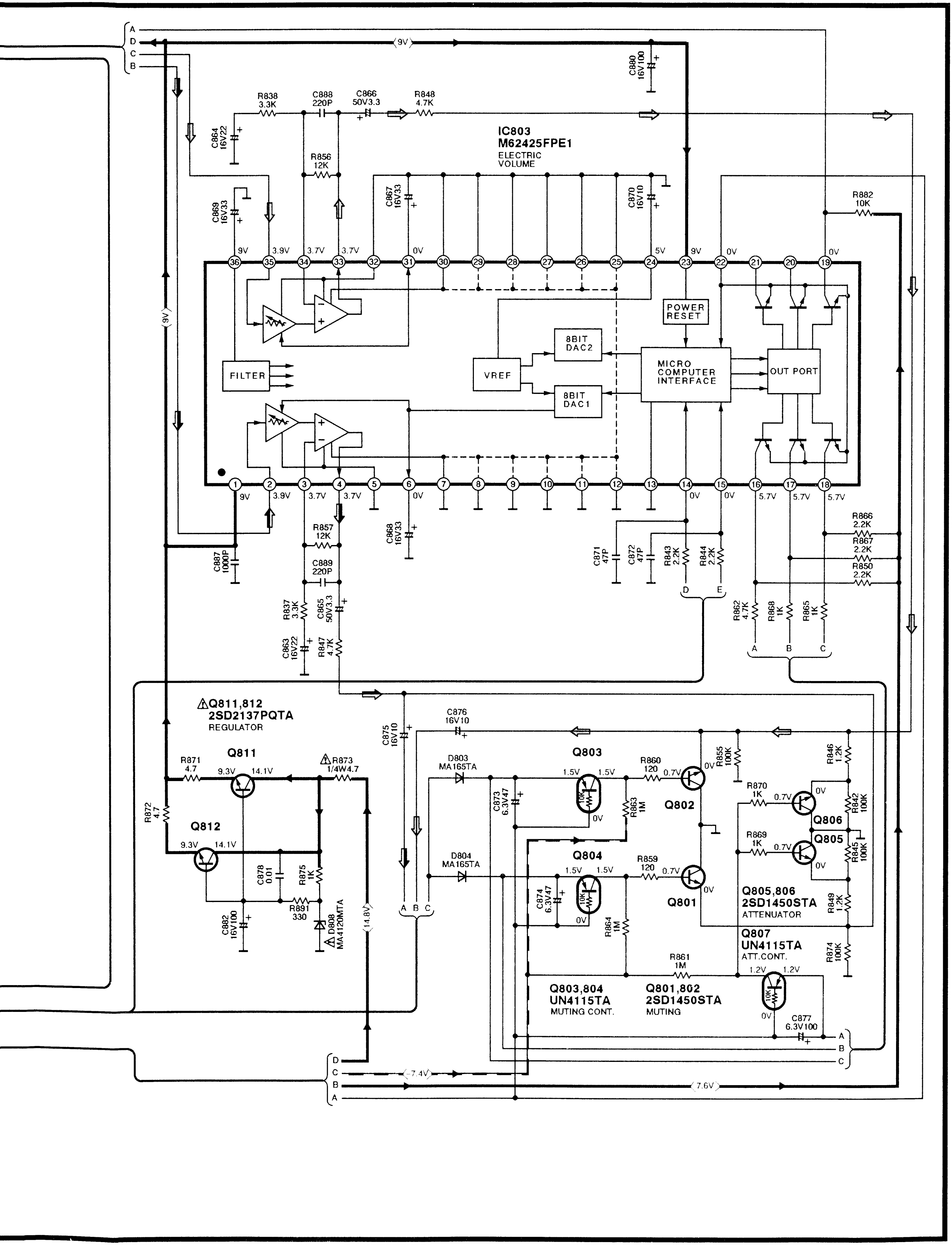
D DOLBY PROLOGIC CIRCUIT (P.C.Board:on page 44)


Q881
2SD1450STA
SWITCHING
C883
0.022
0V
0V
R808 100K
R835 2.2K
C861 16V10
C862 16V10
C852 680P
C808 16V10
R836 2.2K
L801
10μH
9V
R853 47K
R851 47K
R854 39K
R852 39K
D801 MA165TA
D802 MA165TA
R827 3.3K
R826 3.3K
R825 3.3K
C837 0.1
C851 16V47
C821 16V220
C825 100P
C826 100P
C827 33P
C848 0.15
C847 50V3.3
C846 0.15
C845 50V4.7
C844 50V0.47
C843 50V4.7
C842 50V0.47
C841 16V10
C840 16V10
C836 50V1
C835 16V47
C834 50V0.47
C833 16V220
C832 0.047
C831 50V0.47
C830 0.082
C829 3300P
C828 0.082
IC801
LV1030
DOLBY
PRO LOGIC
Vcc
VREF
CONTROL
OUT MUTE
PROLOGIC BYPASS SW
INPUT SW
A/D
D/A
CONTROL LOGIC
4K SRAM
DEVIDER
NOISE GENERATOR
L.P.F
NOISE FILTER
NOISE CH
VR CONTROL
BALANCE CONTROL
7K L.P.F
FIL. THL
NR
S-TRIM
P.S.
LOG DIFF
DUAL CONTROL
RECT
BPF
MUTE
C-TRIM
CMODE
VCA
VR
GND
Vss
VDD
4.5V
5.2V
9V
0V
2V
0.7V
2.5V
2.4V
C801 0.15
C802 50V3.3
C803 0.15
C804 50V4.7
C805 50V0.47
C806 50V4.7
C807 50V0.47
C809 50V1
C811 16V33
C812 16V33
C813 16V220
C814 16V10
C815 16V10
C816 16V10
C817 16V10
C818 50V2.2
R819 39K
C820 50V0.33
R822 1K
R823 1M
C824 16V220
X801 (8MHz)
R801 39K
R802 39K
CN801
Lch IN
Rch IN
DPL.GND
Lch OUT
Rch OUT
C OUT
S OUT
MUT.GND
HP S
CN802
CLK4
CLK1
DATA
ENABLE
D.GND
+B(3)
–B
+B(1)

To F MAIN CIRCUIT (CP801) on page 34

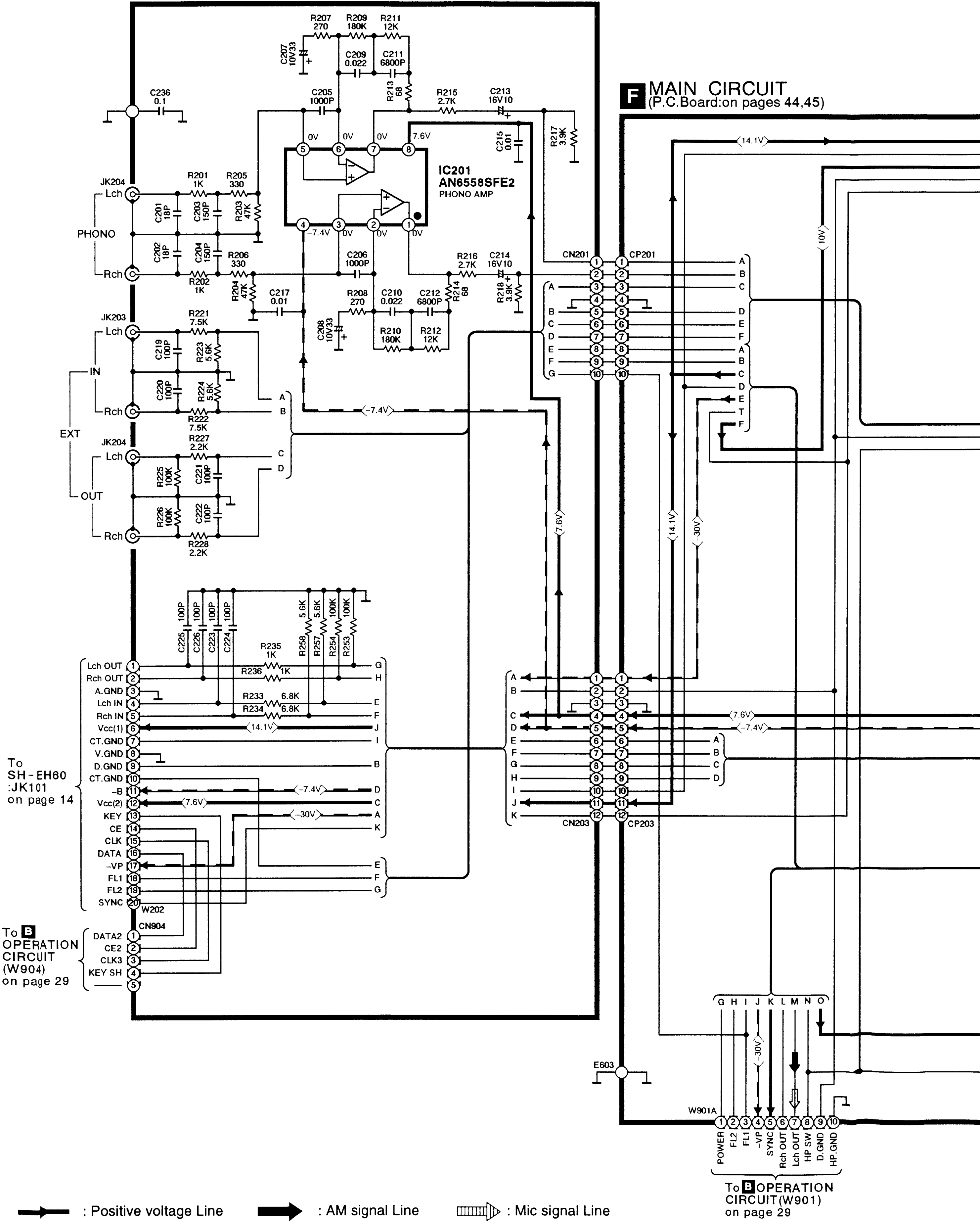
To F MAIN CIRCUIT (CP802) on page 34

D DOLBY PROLOGIC CIRCUIT (P.C.Board:on page 44)


A
D
C
B
9V
C880 16V100
R838 3.3K
C888 220P
C866 50V3.3
R848 4.7K
C864 16V22
R856 12K
IC803
M62425FPE1
ELECTRIC VOLUME
C867 16V33
C870 16V10
R882 10K
C869 16V33
9V
3.9V
3.7V
3.7V
0V
5V
9V
0V
0V
POWER RESET
8BIT DAC2
8BIT DAC1
VREF
FILTER
MICRO COMPUTER INTERFACE
OUT PORT
9V
3.9V
3.7V
3.7V
0V
0V
0V
5.7V
5.7V
5.7V
R857 12K
C868 16V33
R866 2.2K
R867 2.2K
R850 2.2K
C887 1000P
C889 220P
C871 47P
C872 47P
R843 2.2K
R844 2.2K
D
E
R837 3.3K
C865 50V3.3
R862 4.7K
R868 1K
R865 1K
C863 16V22
R847 4.7K
A
B
C
⚠Q811,812
2SD2137PQTA
REGULATOR
C876 16V10
C875 16V10
Q811
R871 4.7
9.3V
14.1V
⚠R873 1/4W4.7
D803 MA165TA
Q803
R860 120
1.5V
1.5V
0.7V
0V
R855 100K
R846 1.2K
R872 4.7
C873 6.3V47
10K
0V
R863 1M
Q802
R870 1K
0.7V
0V
R842 100K
Q812
9.3V
14.1V
Q806
Q805
R869 1K
0.7V
R845 100K
D804 MA165TA
Q804
1.5V
1.5V
R859 120
0.7V
0V
C878 0.01
R875 1K
C874 6.3V47
10K
0V
Q801
0V
Q805,806
2SD1450STA
ATTENUATOR
R849 1.2K
R891 330
A B C
R864 1M
C882 16V100
⚠D908 MA4120MTA
14.8V
Q807
UN4115TA
ATT.CONT.
R874 100K
R861 1M
1.2V
1.2V
Q803,804
UN4115TA
MUTING CONT.
Q801,802
2SD1450STA
MUTING
10K
0V
C877 6.3V100
A
B
C
D
C
B
A
7.4V
7.6V

E IN/OUT TERMINAL CIRCUIT (P.C.Board:on page 44)

F MAIN CIRCUIT (P.C.Board:on pages 44,45)


R207 270
R209 180K
R211 12K
C207 10V33
C209 0.022
C211 6800P
C236 0.1
C205 1000P
R213 68
R215 2.7K
C213 16V10
R217 3.9K
C215 0.01
0V
7.6V
IC201
AN6558SFE2
PHONO AMP
JK204
Lch
Rch
PHONO
R201 1K
R205 330
C201 18P
C203 150P
R203 47K
C202 18P
C204 150P
R206 330
R202 1K
R204 47K
C217 0.01
-7.4V
C206 1000P
R216 2.7K
C214 16V10
R214 68
R218 3.9K
R208 270
C210 0.022
C212 6800P
C208 10V33
R210 180K
R212 12K
CN201
CP201
JK203
IN
EXT
OUT
R221 7.5K
C219 100P
R223 5.6K
C220 100P
R224 5.6K
R222 7.5K
R227 2.2K
R225 100K
C221 100P
R226 100K
C222 100P
R228 2.2K
14.1V
10V
7.6V
-30V
C225 100P
C226 100P
C223 100P
C224 100P
R235 1K
R236 1K
R233 6.8K
R234 6.8K
R258 5.6K
R257 5.6K
R254 100K
R253 100K
Lch OUT
Rch OUT
A.GND
Lch IN
Rch IN
Vcc(1)
CT.GND
V.GND
D.GND
CT.GND
-B
Vcc(2)
KEY
CE
CLK
DATA
-VP
FL1
FL2
SYNC
W202
CN904
To SH-EH60 :JK101 on page 14
To B OPERATION CIRCUIT (W904) on page 29
DATA2
CE2
CLK3
KEY SH
CN203
CP203
E603
W901A
G H I J K L M N O
POWER
FL2
FL1
-VP
SYNC
Rch OUT
Lch OUT
HP SW
D.GND
HP.GND
To B OPERATION CIRCUIT(W901) on page 29

━━▶━━ : Positive voltage Line

➡ : AM signal Line

▭▭▭▷ : Mic signal Line

╍╍▶╍╍ : Negative voltage Line

⇨ : FM signal Line

⟹ :Center Speaker Drive signal Line

▨⇨ : Surround Speaker signal Line

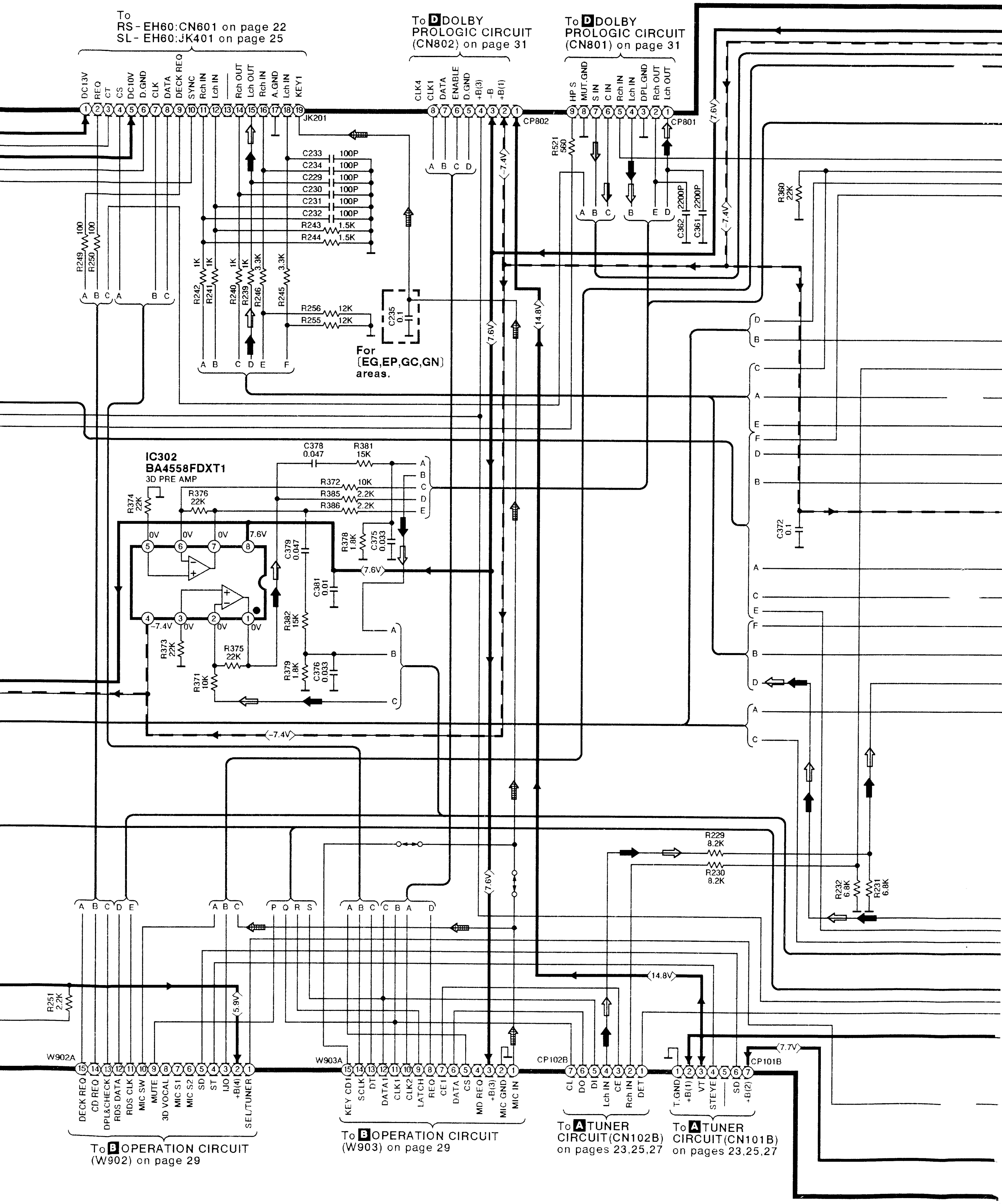
→ : Positive voltage Line

⇢ : Negative voltage Line

➡ : AM signal Line

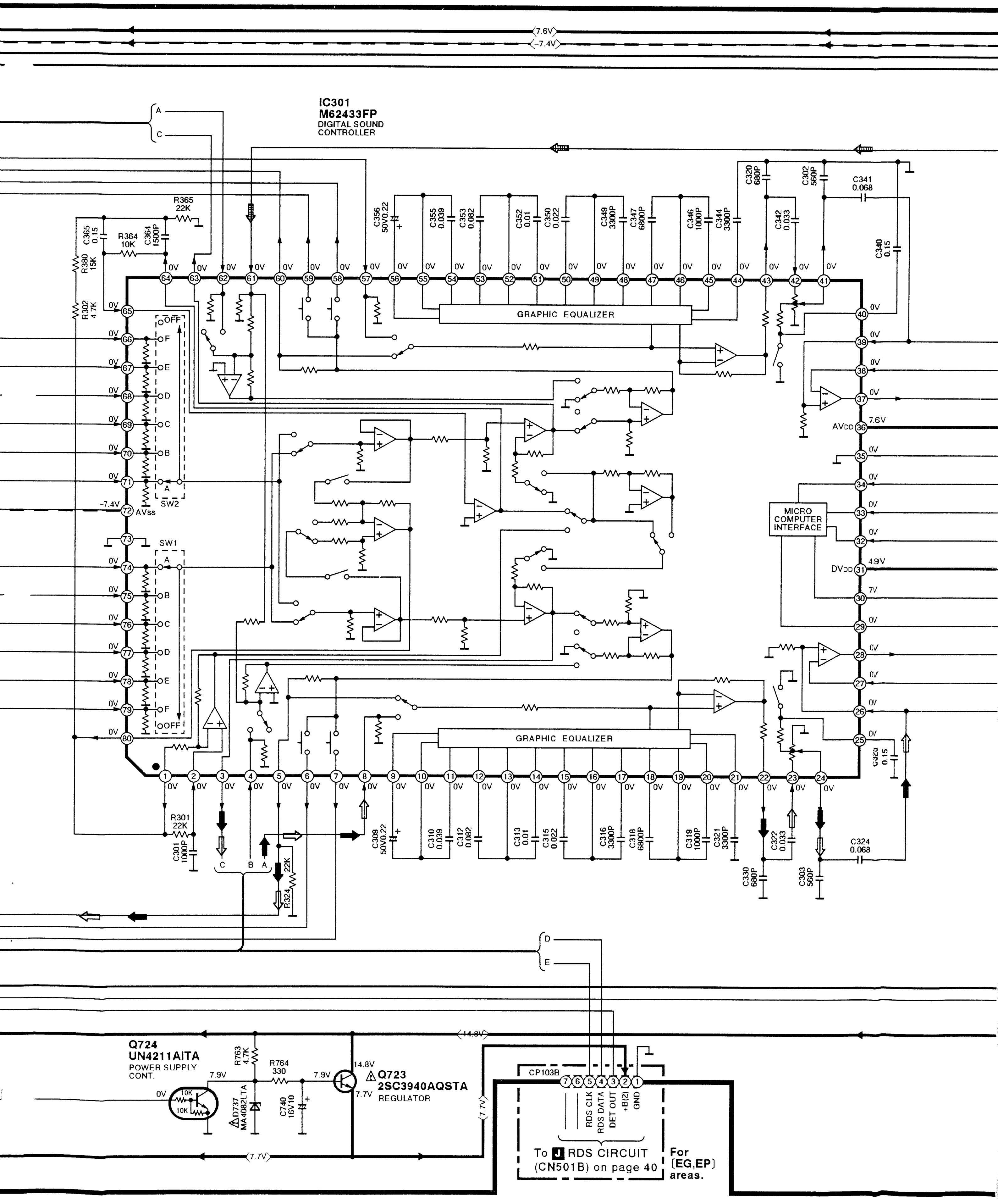
⇨ : FM signal Line

▥⇨ : Mic signal Line


To
RS-EH60:CN601 on page 22
SL-EH60:JK401 on page 25
DC13V
REQ
CT
CS
DC10V
D.GND
CLK
DATA
DECK REQ
SYNC
Rch IN
Lch IN
Rch OUT
Lch OUT
Rch IN
A.GND
Lch IN
KEY1
JK201
To D DOLBY PROLOGIC CIRCUIT (CN802) on page 31
CLK4
CLK1
DATA
ENABLE
D.GND
+B(3)
-B
+B(1)
CP802
To D DOLBY PROLOGIC CIRCUIT (CN801) on page 31
HP S
MUT.GND
S IN
C IN
Rch IN
Lch IN
DPL.GND
Rch OUT
Lch OUT
CP801
R521 560
C233 100P
C234 100P
C229 100P
C230 100P
C231 100P
C232 100P
R243 1.5K
R244 1.5K
R249 100
R250 100
R242 1K
R241 1K
R240 1K
R239 1K
R246 3.3K
R245 3.3K
R256 12K
R255 12K
C235 0.1
For [EG,EP,GC,GN] areas.
C362 2200P
C361 2200P
R360 22K
C372 0.1
(7.6V)
(-7.4V)
(14.8V)
IC302
BA4558FDXT1
3D PRE AMP
C378 0.047
R381 15K
R372 10K
R385 2.2K
R386 2.2K
R374 22K
R376 22K
C379 0.047
R378 1.8K
C375 0.033
C381 0.01
R382 15K
R373 22K
R375 22K
R371 10K
R379 1.8K
C376 0.033
0V
7.6V
-7.4V
R229 8.2K
R230 8.2K
R232 6.8K
R231 6.8K
R251 2.2K
(5.9V)
(7.7V)
W902A
DECK REQ
CD REQ
DPL&CHECK
RDS DATA
RDS CLK
MIC SW
MUTE
3D VOCAL
MIC S1
MIC S2
SD
ST
IJO
+B(4)
SEL/TUNER
To B OPERATION CIRCUIT (W902) on page 29
W903A
KEY CD1
SCLK
DT
DATA1
CLK1
CLK2
LATCH
REQ
CE1
DATA
CS
MD REQ
+B(3)
MIC GND
MIC IN
To B OPERATION CIRCUIT (W903) on page 29
CP102B
CL
DO
DI
Lch IN
CE
Rch IN
DET
To A TUNER CIRCUIT(CN102B) on pages 23,25,27
CP101B
T.GND
+B(1)
VT
STEYE
SD
+B(2)
To A TUNER CIRCUIT(CN101B) on pages 23,25,27

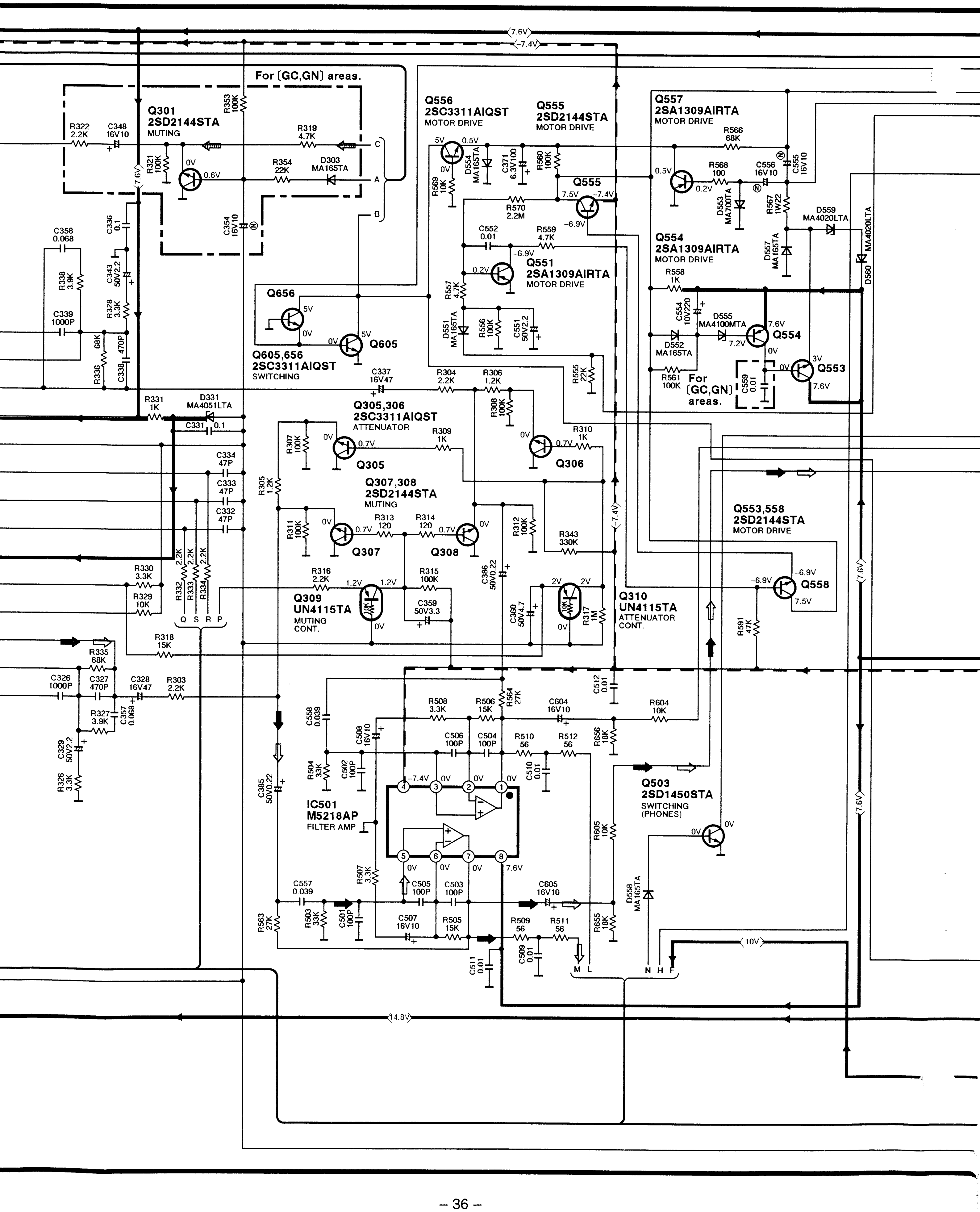
)

F MAIN CIRCUIT (P.C.Board:on pages 44,45)

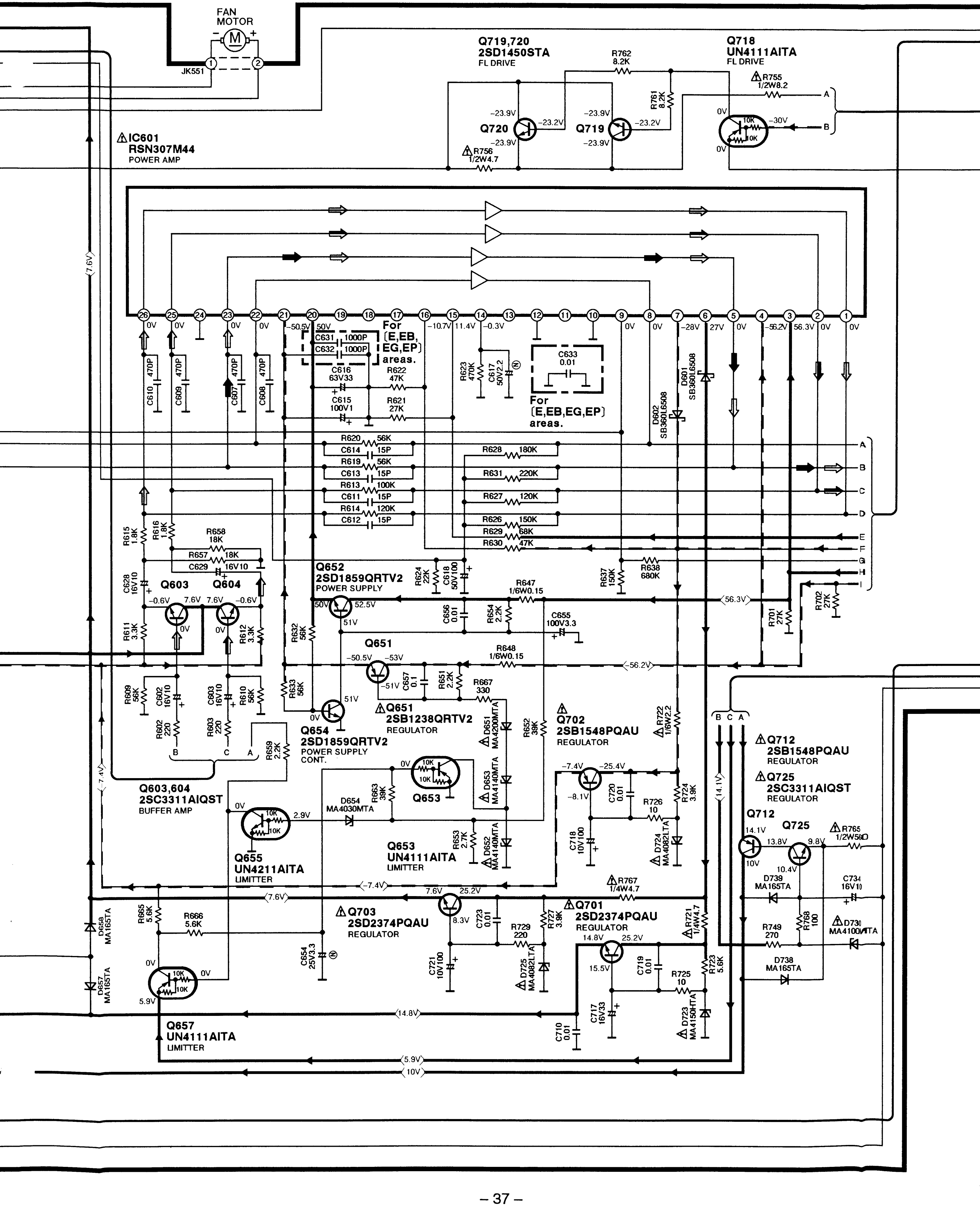


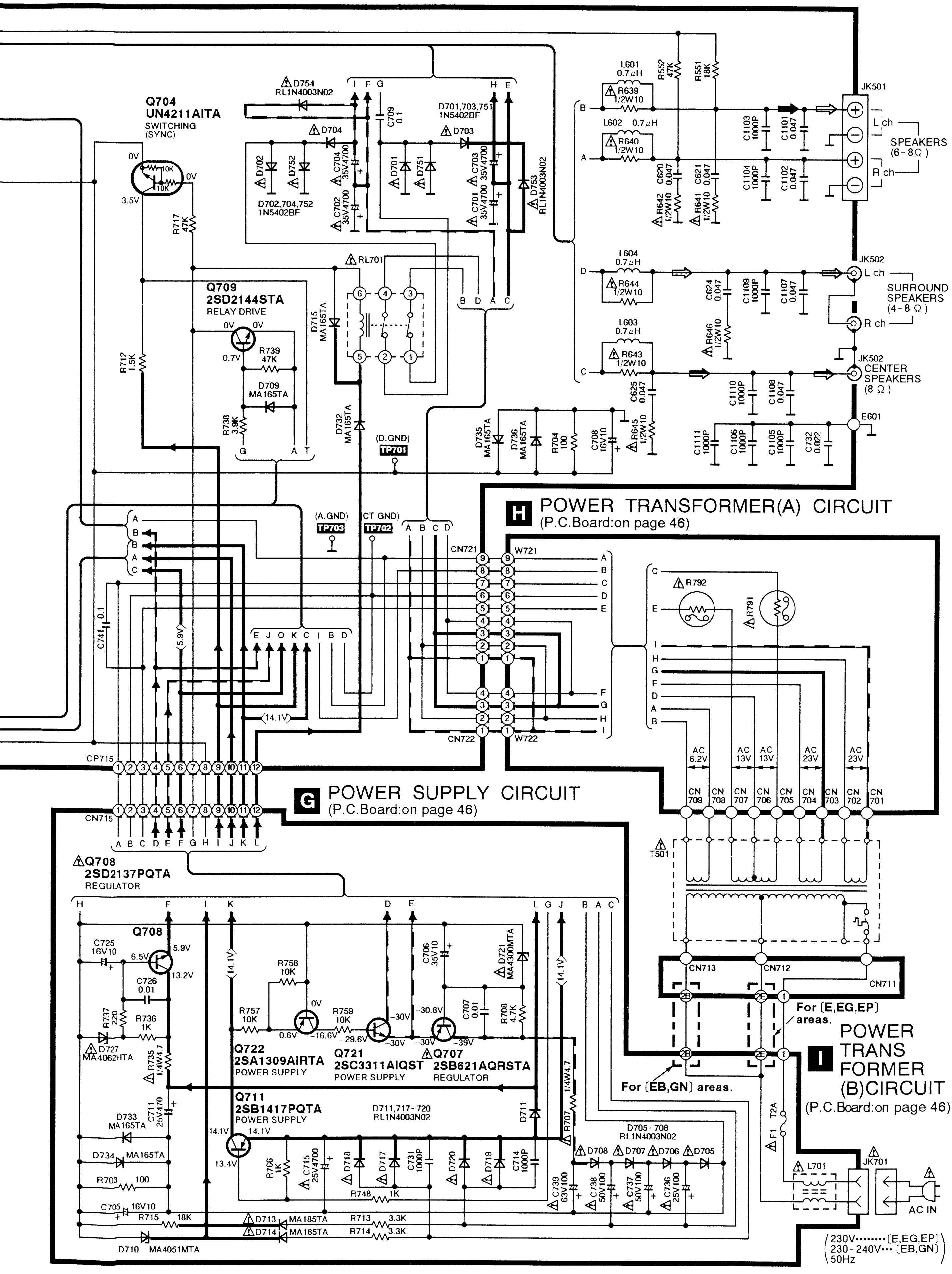
7.6V
-7.4V
IC301
M62433FP
DIGITAL SOUND
CONTROLLER
A
C
R365 22K
R364 10K
C364 1500P
C365 0.15
R380 15K
R302 4.7K
C356 50V0.22
C355 0.039
C353 0.082
C352 0.01
C350 0.022
C349 3300P
C347 6800P
C346 1000P
C344 3300P
C320 680P
C302 560P
C341 0.068
C342 0.033
C340 0.15
GRAPHIC EQUALIZER
OFF
F
E
D
C
B
A
SW2
SW1
AVss
AVDD
DVDD
MICRO
COMPUTER
INTERFACE
0V
7.6V
4.9V
7V
-7.4V
R301 22K
C301 1000P
R324 22K
C309 50V0.22
C310 0.039
C312 0.082
C313 0.01
C315 0.022
C316 3300P
C318 6800P
C319 1000P
C321 3300P
C322 0.033
C330 680P
C303 560P
C324 0.068
C325 0.15
D
E
14.8V
Q724
UN4211AITA
POWER SUPPLY
CONT.
7.9V
10K
10K
R763 4.7K
R764 330
D737 MA4082LTA
C740 16V10
14.8V
Q723
2SC3940AQSTA
REGULATOR
7.7V
CP103B
RDS CLK
RDS DATA
DET OUT
+B(2)
GND
To J RDS CIRCUIT
(CN501B) on page 40
For
[EG,EP]
areas.

→ : Positive voltage Line
⇢ : Negative voltage Line
➡ : Surround Speaker signal Line
➡ : AM signal Line
⇨ : FM signal Line
➡ : Mic signal Line
➡ :Center Speaker Drive signal Line

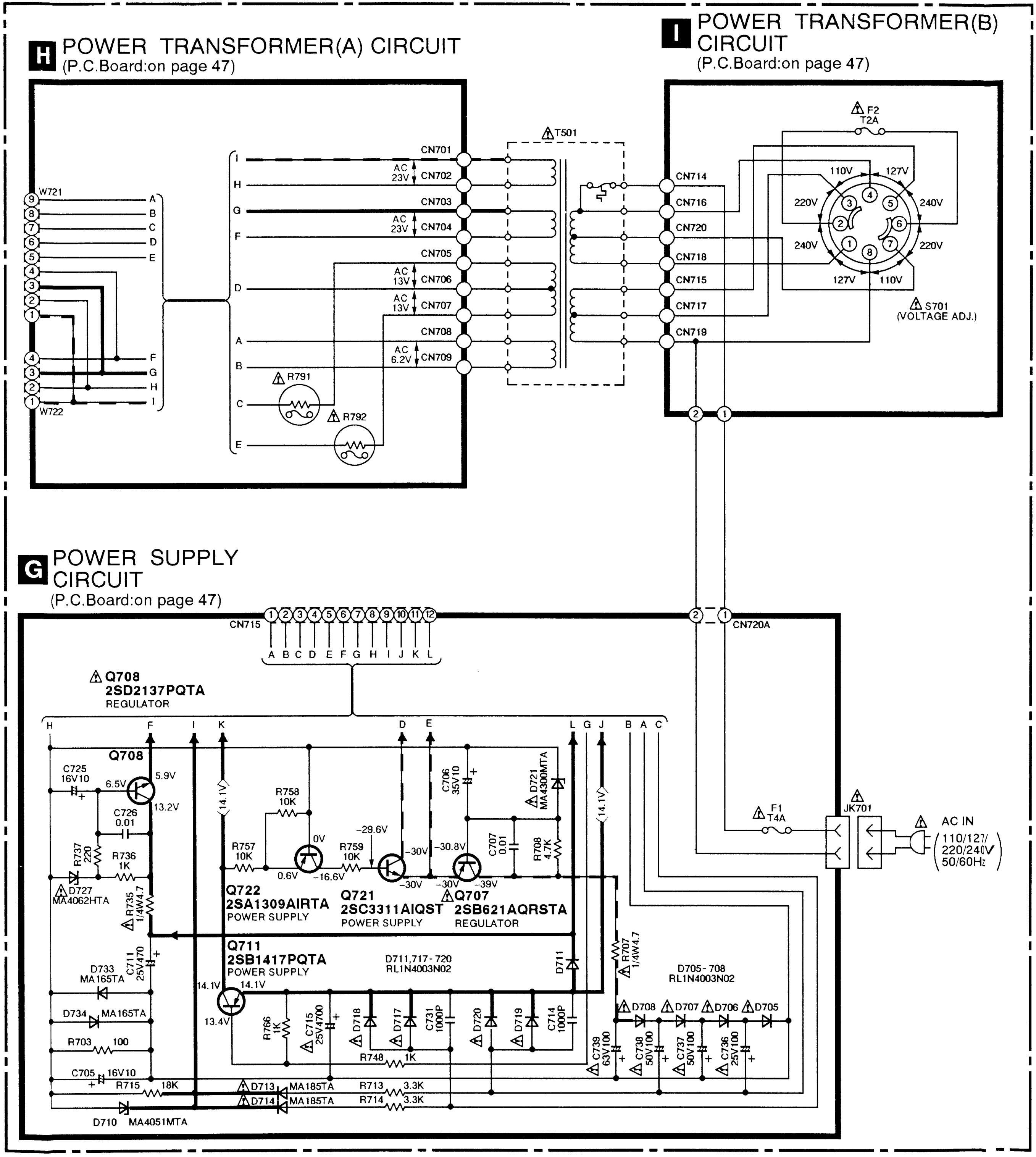

7.6V
-7.4V
For [GC,GN] areas.
Q301
2SD2144STA
MUTING
R353 100K
R322 2.2K
C348 16V10
R319 4.7K
C
R321 100K
0V
0.6V
R354 22K
D303 MA165TA
A
B
7.6V
C354 16V10
C336 0.1
C358 0.068
C343 50V2.2
R338 3.9K
R328 3.3K
C339 1000P
68K
470P
R336
C338
Q656
5V
0V
Q605
Q605,656
2SC3311AIQST
SWITCHING
C337 16V47
R331 1K
D331 MA4051LTA
C331 0.1
C334 47P
C333 47P
C332 47P
R330 3.3K
R329 10K
R332 2.2K
R333 2.2K
R334 2.2K
Q S R P
R318 15K
R335 68K
C326 1000P
C327 470P
C328 16V47
R303 2.2K
R327 3.9K
C357 0.068
C329 50V2.2
R326 3.3K
Q556
2SC3311AIQST
MOTOR DRIVE
Q555
2SD2144STA
MOTOR DRIVE
5V 0.5V
D554 MA165TA
C371 6.3V100
R560 100K
R569 10K
R570 2.2M
Q555
7.5V -7.4V
-6.9V
C552 0.01
R559 4.7K
-6.9V
Q551
2SA1309AIRTA
MOTOR DRIVE
0.2V
R557 4.7K
D551 MA165TA
R556 100K
C551 50V2.2
R304 2.2K
R306 1.2K
R555 22K
R308 100K
Q305,306
2SC3311AIQST
ATTENUATOR
R307 100K
0.7V
R309 1K
Q305
R310 1K
Q306
R305 1.2K
Q307,308
2SD2144STA
MUTING
R311 100K
R313 120
R314 120
Q307
Q308
R312 100K
R343 330K
C386 50V0.22
-7.4V
R316 2.2K
1.2V
R315 100K
Q309
UN4115TA
MUTING CONT.
C359 50V3.3
C360 50V4.7
2V
R317 1M
Q310
UN4115TA
ATTENUATOR CONT.
C512 0.01
C558 0.039
R508 3.3K
R506 15K
R564 27K
C604 16V10
R604 10K
C508 16V10
C506 100P
C504 100P
R510 56
R512 56
R656 18K
R504 33K
C502 100P
C510 0.01
C385 50V0.22
IC501
M5218AP
FILTER AMP
-7.4V
4 3 2 1
5 6 7 8
7.6V
R507 3.3K
C557 0.039
C505 100P
C503 100P
C605 16V10
R503 33K
C501 100P
C507 16V10
R505 15K
R509 56
R511 56
R655 18K
R563 27K
C511 0.01
C509 0.01
M L
N H F
10V
14.8V
Q557
2SA1309AIRTA
MOTOR DRIVE
R566 68K
0.5V
R568 100
C556 16V10
C555 16V10
0.2V
D553 MA700TA
R567 1W22
D559 MA4020LTA
D560 MA4020LTA
Q554
2SA1309AIRTA
MOTOR DRIVE
D557 MA165TA
R558 1K
C554 10V220
D555 MA4100MTA
7.6V
Q554
D552 MA165TA
7.2V
0V
R561 100K
For [GC,GN] areas.
C559 0.01
Q553
3V
7.6V
Q553,558
2SD2144STA
MOTOR DRIVE
-6.9V
Q558
7.5V
R591 47K
Q503
2SD1450STA
SWITCHING (PHONES)
R605 10K
D558 MA165TA
7.6V

F MAIN CIRCUIT (P.C.Board:on pages 44,45)


FAN MOTOR
M
JK551
Q719,720
2SD1450STA
FL DRIVE
R762
8.2K
Q718
UN4111AITA
FL DRIVE
R755
1/2W8.2
R761
8.2K
-23.9V
-23.2V
-30V
Q720
Q719
10K
R756
1/2W4.7
IC601
RSN307M44
POWER AMP
C631 1000P
C632 1000P
For (E,EB,EG,EP) areas.
C616
63V33
R622
47K
C615
100V1
R621
27K
C633
0.01
For (E,EB,EG,EP) areas.
R623
470K
C617
50V2.2
D601
SB360L6508
D602
SB360L6508
C610 470P
C609 470P
C607 470P
C608 470P
R620 56K
C614 15P
R619 56K
C613 15P
R613 100K
C611 15P
R614 120K
C612 15P
R628 180K
R631 220K
R627 120K
R626 150K
R629 68K
R630 47K
R638 680K
R637 150K
R615 1.8K
R616 1.8K
R658 18K
R657 18K
C629 16V10
C628 16V10
Q603
Q604
R611 3.3K
R612 3.3K
R609 56K
C602 16V10
C603 16V10
R610 56K
R602 220
R603 220
R659 2.2K
Q603,604
2SC3311AIQST
BUFFER AMP
Q652
2SD1859QRTV2
POWER SUPPLY
R624 22K
C618 50V100
R647 1/6W0.15
C656 0.01
R654 2.2K
C655 100V3.3
R632 56K
R633 56K
Q651
R648 1/6W0.15
C657 0.1
R651 2.2K
R667 330
Q654
2SD1859QRTV2
POWER SUPPLY CONT.
Q651
2SB1238QRTV2
REGULATOR
D651 MA4200MTA
R652 39K
Q702
2SB1548PQAU
REGULATOR
R722 1/6W2.2
R701 27K
R702 27K
Q653
D654 MA4030MTA
R663 39K
D653 MA4140MTA
R653 2.7K
D652 MA4140MTA
Q653
UN4111AITA
LIMITTER
Q655
UN4211AITA
LIMITTER
C720 0.01
R726 10
R724 3.9K
C718 10V100
D724 MA4082LTA
Q712
2SB1548PQAU
REGULATOR
Q725
2SC3311AIQST
REGULATOR
Q712
Q725
R765 1/2W560
D739 MA165TA
C734 16V10
R749 270
R768 100
D730 MA4100MTA
D738 MA165TA
R767 1/4W4.7
Q703
2SD2374PQAU
REGULATOR
C723 0.01
R729 220
R727 3.9K
Q701
2SD2374PQAU
REGULATOR
R721 1/4W4.7
C721 10V100
D725 MA4082LTA
C719 0.01
R725 10
R723 5.6K
C654 25V3.3
R665 5.6K
R666 5.6K
D659 MA165TA
D657 MA165TA
C717 16V33
C710 0.01
D723 MA4150HTA
Q657
UN4111AITA
LIMITTER
A
B
C
D
E
F
G
H
I
(7.6V)
(-7.4V)
(56.3V)
(-56.2V)
(-7.4V)
(7.6V)
(14.8V)
(5.9V)
(10V)
(14.1V)
0V
-0.6V
7.6V
50V
52.5V
51V
-50.5V
-53V
-51V
2.9V
-7.4V
-25.4V
-8.1V
14.1V
13.8V
9.8V
10.4V
25.2V
8.3V
14.8V
15.5V
5.9V
-10.7V
11.4V
-0.3V
-28V
27V
-56.2V
56.3V


H POWER TRANSFORMER(A) CIRCUIT
(P.C.Board:on page 46)
G POWER SUPPLY CIRCUIT
(P.C.Board:on page 46)
I POWER TRANS FORMER (B)CIRCUIT
(P.C.Board:on page 46)
Q704
UN4211AITA
SWITCHING (SYNC)
Q709
2SD2144STA
RELAY DRIVE
Q708
2SD2137PQTA
REGULATOR
Q722
2SA1309AIRTA
POWER SUPPLY
Q721
2SC3311AIQST
POWER SUPPLY
Q707
2SB621AQRSTA
REGULATOR
Q711
2SB1417PQTA
POWER SUPPLY
D754 RL1N4003N02
D701,703,751 1N5402BF
D702,704,752 1N5402BF
D753 RL1N4003N02
RL701
D715 MA165TA
D732 MA165TA
D709 MA165TA
D735 MA165TA
D736 MA165TA
D711,717-720 RL1N4003N02
D705-708 RL1N4003N02
D721 MA4300MTA
D727 MA4062HTA
D733 MA165TA
D734 MA165TA
D713 MA185TA
D714 MA185TA
D710 MA4051MTA
(D.GND) TP701
(A.GND) TP703
(CT GND) TP702
CN721
W721
CN722
W722
CP715
CN715
CN701 CN702 CN703 CN704 CN705 CN706 CN707 CN708 CN709
AC 6.2V
AC 13V
AC 13V
AC 23V
AC 23V
R792
R791
T501
CN713
CN712
CN711
For [E,EG,EP] areas.
For [EB,GN] areas.
F1 T2A
L701
JK701
AC IN
230V·······[E,EG,EP]
230-240V···[EB,GN]
50Hz
JK501
L ch
R ch
SPEAKERS (6-8Ω)
JK502
SURROUND SPEAKERS (4-8Ω)
CENTER SPEAKERS (8Ω)
E601
L601 0.7μH
L602 0.7μH
L603 0.7μH
L604 0.7μH
R639 1/2W10
R640 1/2W10
R643 1/2W10
R644 1/2W10
R645 1/2W10
R646 1/2W10
R641 1/2W10
R642 1/2W10
R552 47K
R551 18K
C620 0.047
C621 0.047
C624 0.047
C625 0.047
C1101 0.047
C1102 0.047
C1103 1000P
C1104 1000P
C1105 1000P
C1106 1000P
C1107 0.047
C1108 0.047
C1109 1000P
C1110 1000P
C1111 1000P
C732 0.022
C701 35V4700
C702 35V4700
C703 35V4700
C704 35V4700
C709 0.1
C708 16V10
R704 100
R717 47K
R712 1.5K
R739 47K
R738 3.9K
C741 0.1
(5.9V)
(14.1V)
C725 16V10
C726 0.01
R737 220
R736 1K
R735 1/4W4.7
C711 25V470
R703 100
C705 16V10
R715 18K
R713 3.3K
R714 3.3K
R758 10K
R757 10K
R759 10K
C706 35V10
C707 0.01
R708 4.7K
R707 1/4W4.7
R766 1K
C715 25V4700
C731 1000P
C714 1000P
R748 1K
C739 63V100
C738 50V100
C737 50V100
C736 25V100
0V
3.5V
0.7V
6.5V
5.9V
13.2V
0.6V
-16.6V
-29.6V
-30V
-30.8V
-39V
14.1V
13.4V

POWER SOURCE CIRCUIT For [GC] area.

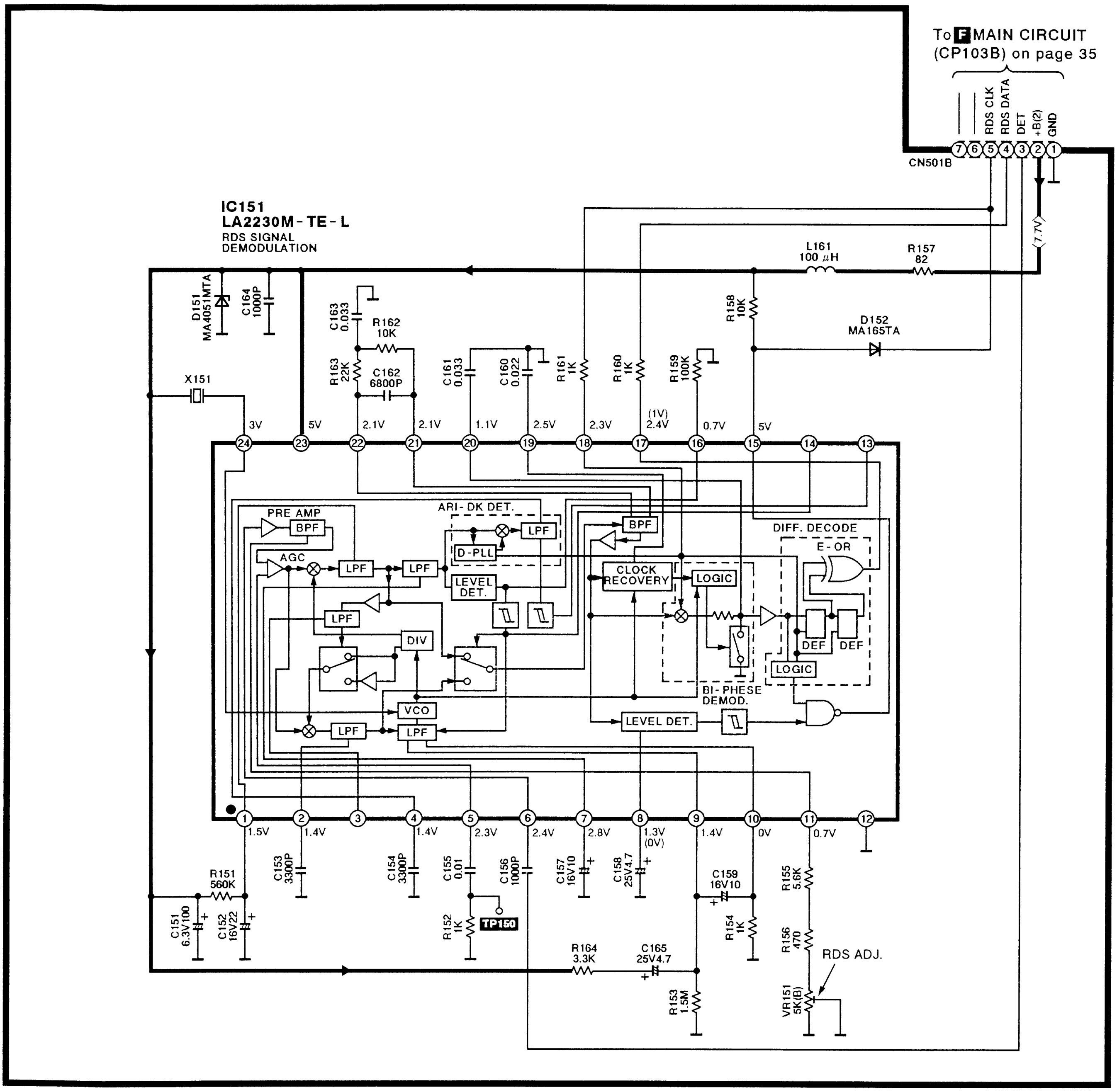

H POWER TRANSFORMER(A) CIRCUIT
(P.C.Board:on page 47)
I POWER TRANSFORMER(B) CIRCUIT
(P.C.Board:on page 47)
G POWER SUPPLY CIRCUIT
(P.C.Board:on page 47)
W721
W722
T501
CN701
CN702
CN703
CN704
CN705
CN706
CN707
CN708
CN709
AC 23V
AC 23V
AC 13V
AC 13V
AC 6.2V
R791
R792
F2
T2A
CN714
CN716
CN720
CN718
CN715
CN717
CN719
110V
127V
220V
240V
240V
220V
127V
110V
S701
(VOLTAGE ADJ.)
CN715
CN720A
Q708
2SD2137PQTA
REGULATOR
Q708
C725
16V10
6.5V
5.9V
13.2V
C726
0.01
R737
220
R736
1K
D727
MA4062HTA
R735
1/4W4.7
C711
25V470
D733
MA165TA
D734
MA165TA
R703
100
C705
16V10
R715
18K
D710
MA4051MTA
(14.1V)
R758
10K
R757
10K
0V
0.6V
-16.6V
R759
10K
-29.6V
-30V
-30.8V
-30V
-30V
-39V
Q722
2SA1309AIRTA
POWER SUPPLY
Q721
2SC3311AIQST
POWER SUPPLY
Q707
2SB621AQRSTA
REGULATOR
C706
35V10
D721
MA4300MTA
C707
0.01
R708
4.7K
Q711
2SB1417PQTA
POWER SUPPLY
14.1V
14.1V
13.4V
D711,717-720
RL1N4003N02
D711
R766
1K
C715
25V4700
D718
D717
C731
1000P
D720
D719
C714
1000P
R748
1K
D713
MA185TA
D714
MA185TA
R713
3.3K
R714
3.3K
R707
1/4W4.7
D705-708
RL1N4003N02
D708
D707
D706
D705
C739
63V100
C738
50V100
C737
50V100
C736
25V100
F1
T4A
JK701
AC IN
110/127/
220/240V
50/60Hz

→ : Positive voltage Line
➡ : AM signal Line
⇨ : Mic signal Line

⇢ : Negative voltage Line
⇨ : FM signal Line
➡ :Center Speaker Drive signal Line

⇨ : Surround Speaker signal Line

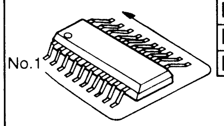
J RDS CIRCUIT For〔EG,EP〕areas. (P.C.Board:on page 46)


To F MAIN CIRCUIT
(CP103B) on page 35
RDS CLK
RDS DATA
DET
+B(2)
GND
7 6 5 4 3 2 1
CN501B
(7.7V)
IC151
LA2230M-TE-L
RDS SIGNAL
DEMODULATION
L161
100 μH
R157
82
D151
MA4051MTA
C164
1000P
C163
0.033
R162
10K
R163
22K
C162
6800P
C161
0.033
C160
0.022
R161
1K
R160
1K
R159
100K
R158
10K
D152
MA165TA
X151
3V
5V
2.1V
2.1V
1.1V
2.5V
2.3V
(1V)
2.4V
0.7V
5V
24 23 22 21 20 19 18 17 16 15 14 13
PRE AMP
BPF
AGC
LPF
LPF
LPF
ARI-DK DET.
LPF
D-PLL
LEVEL
DET.
BPF
CLOCK
RECOVERY
LOGIC
DIFF. DECODE
E-OR
DEF
DEF
LOGIC
DIV
VCO
LPF
LPF
LEVEL DET.
BI-PHESE
DEMOD.
1 2 3 4 5 6 7 8 9 10 11 12
1.5V
1.4V
1.4V
2.3V
2.4V
2.8V
1.3V
(0V)
1.4V
0V
0.7V
R151
560K
C151
6.3V100
C152
16V22
C153
3300P
C154
3300P
C155
0.01
C156
1000P
C157
16V10
C158
25V4.7
R152
1K
TP150
R164
3.3K
C165
25V4.7
C159
16V10
R154
1K
R153
1.5M
R155
5.6K
R156
470
RDS ADJ.
VR151
5K(B)

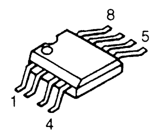
➡ : Positive voltage Line

■ Type Illustration of IC's, Transistors and Diodes

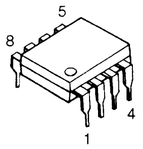
AN6558SFE2	8PIN
BU9255FS-E2	16PIN
LA1832MH-TEL	24PIN
LA2230M-TE-L	24PIN
LC7218M-TE-L	24PIN
M62425FPE1	36PIN



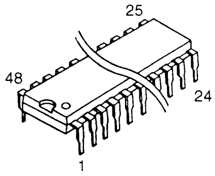
BA4558FDXT1



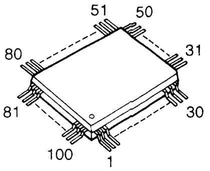
M5218AP



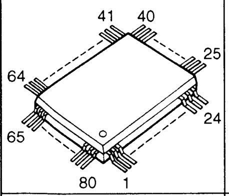
LV1030



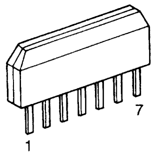
M38198MC097F
M38198MC099F


51
50
80
31
81
30
100
1

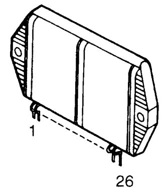
M62433FP


41
40
25
64
24
65
80
1

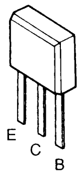
TA2011S



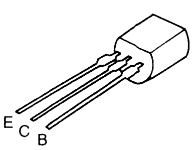
RSN307M44



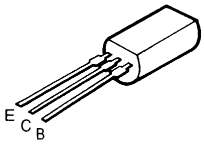
2SA1309AIRTA
2SC2787LTA
2SC2785FETA
2SC3311AIQST
2SC3311ARSTA
2SD1450STA
UN411FTA
UN4111AITA
UN4115TA
UN4211AITA
UN4214AITA



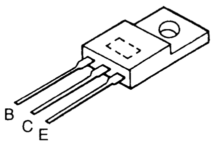
2SB621AQRSTA



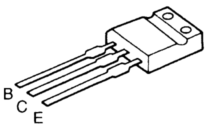
2SC3940AQSTA



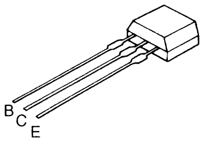
2SB1548PQAU
2SD2374PQAU



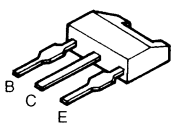
2SB1417PQTA
2SD2137PQTA



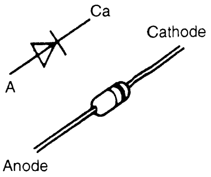
2SD2144STA



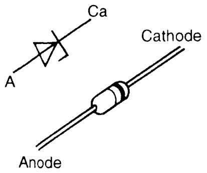
2SB1238QRTV2
2SD1859QRTV2



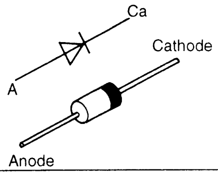
MA185TA


Ca
Cathode
A
Anode

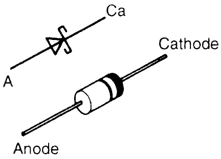
MA4100MTA
MA4120MTA
MA4140MTA
MA4150HTA
MA4200MTA
MA4300MTA


Ca
Cathode
A
Anode

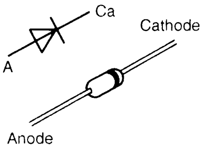
1N5402BF
RL1N4003N02


Ca
Cathode
A
Anode

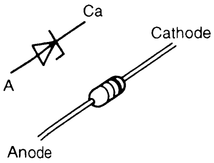
SB360L6508


Ca
Cathode
A
Anode

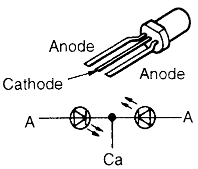
MA165TA
MA700TA
1SS291TA


Ca
Cathode
A
Anode

MA4020LTA
MA4030MTA
MA4039MTA
MA4051LTA
MA4051MTA
MA4062HTA
MA4082LTA


Ca
Cathode
A
Anode

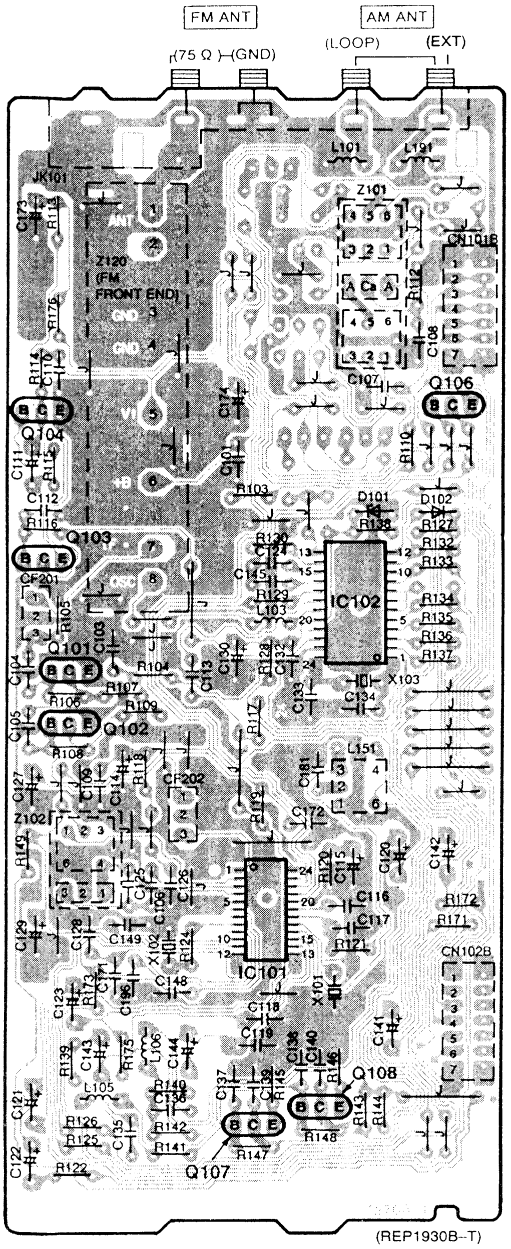
SPR505MDTT


Anode
Cathode
Anode
A
A
Ca

■ Printed Circuit Board Diagram

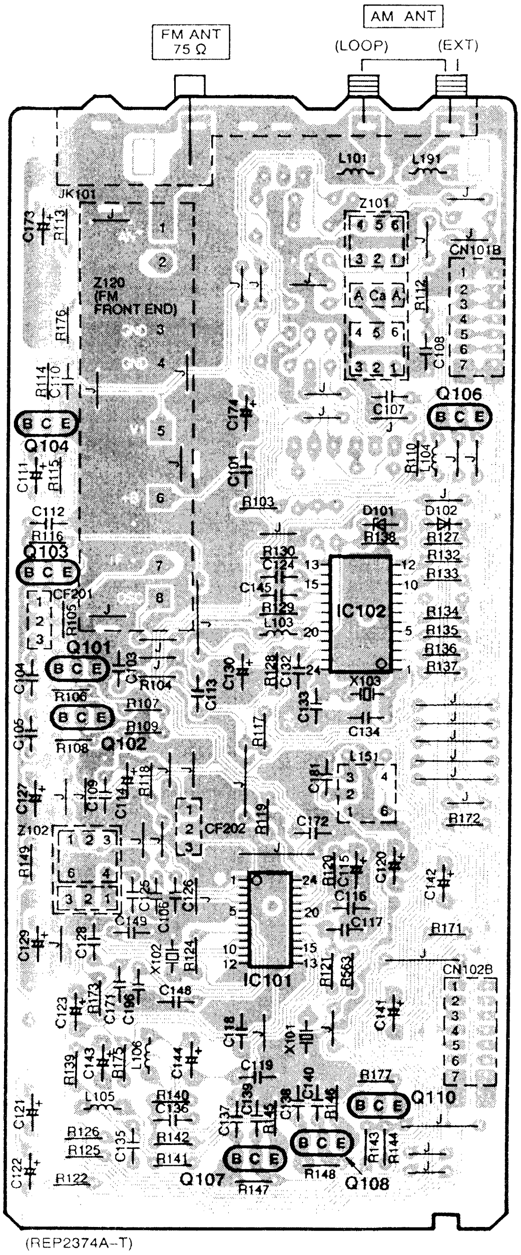
- This circuit board diagram may be modified at any time with the development of new technology.

A TUNER P.C.B. For [E,EB] areas.


FM ANT
(75 Ω
(GND)
AM ANT
(LOOP)
(EXT)
JK101
Z120
(FM FRONT END)
ANT
GND
V1
+B
OSC
Z101
CN101B
L101
L191
Q104
Q106
Q103
Q101
Q102
CF201
CF202
Z102
IC102
IC101
X101
X102
X103
D101
D102
L103
L105
L106
L151
Q107
Q108
CN102B
B C E

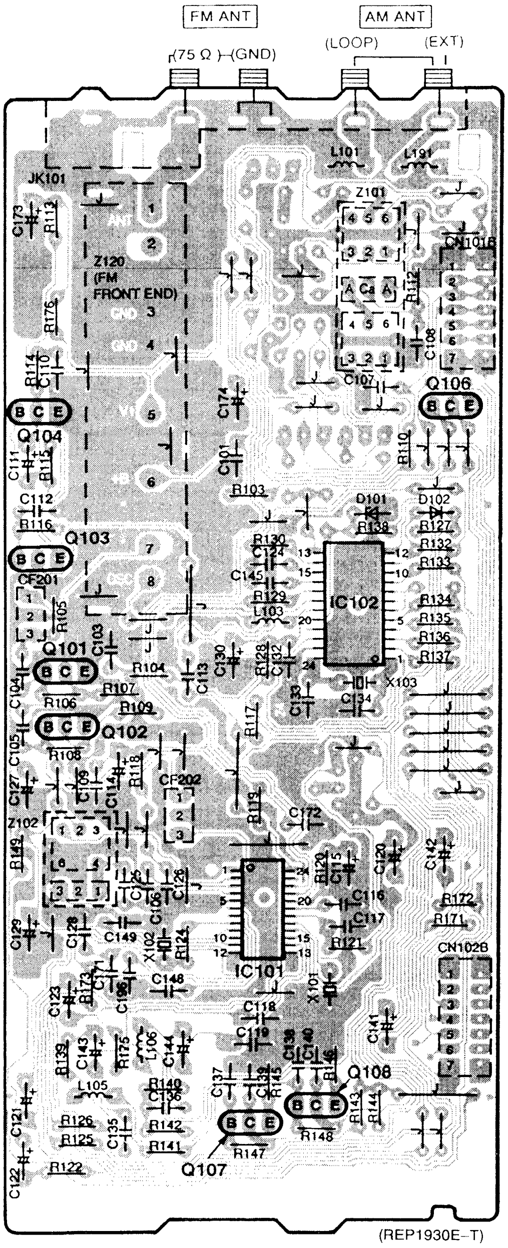
(REP1930B–T)

A TUNER P.C.B. For [EG,EP] areas.


FM ANT
75 Ω
AM ANT
(LOOP)
(EXT)
JK101
Z120
(FM FRONT END)
Z101
CN101B
L101
L191
Q104
Q106
Q103
Q101
Q102
CF201
CF202
Z102
IC102
IC101
X101
X102
X103
D101
D102
L103
L105
L106
L151
Q107
Q108
Q110
CN102B
B C E

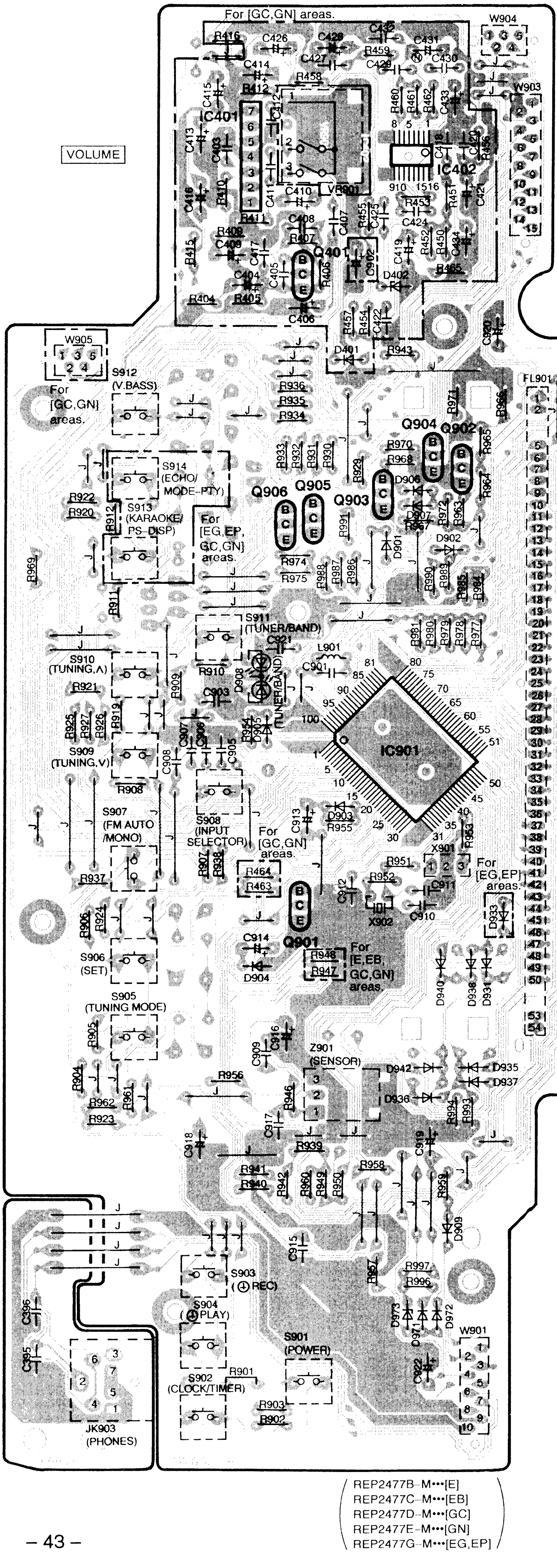
(REP2374A–T)

A TUNER P.C.B. For [GC,GN] areas.


FM ANT
AM ANT
(75 Ω)
(GND)
(LOOP)
(EXT)
JK101
Z120
(FM FRONT END)
ANT
GND
Z101
CN101B
Q101
Q102
Q103
Q104
Q106
Q107
Q108
IC101
IC102
X101
X102
X103
L101
L191
L103
L105
L106
D101
D102
CF201
CF202
Z102
CN102B

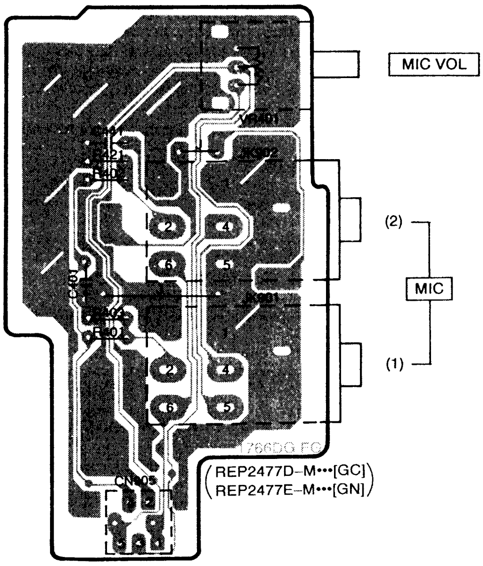
(REP1930E-T)

B OPERATION P.C.B.

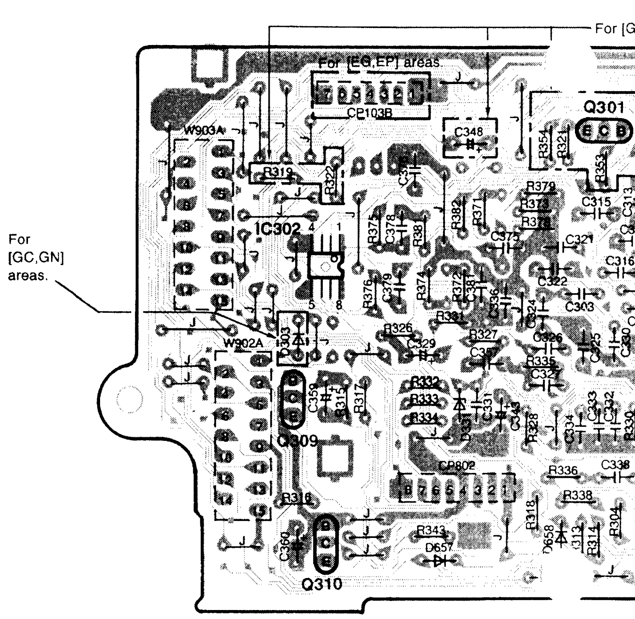

VOLUME
For [GC,GN] areas.
W904
W903
W902
W905
W901
IC401
IC402
IC901
VR901
Q401
Q901
Q902
Q903
Q904
Q905
Q906
FL901
S912
(V.BASS)
For [GC,GN] areas.
S914
(ECHO/MODE-PTY)
S913
(KARAOKE/PS-DISP)
For [EG,EP, GC,GN] areas.
S911
(TUNER/BAND)
S910
(TUNING,∧)
S909
(TUNING,∨)
S907
(FM AUTO /MONO)
S908
(INPUT SELECTOR)
For [GC,GN] areas.
S906
(SET)
S905
(TUNING MODE)
For [E,EB, GC,GN] areas.
For [EG,EP] areas.
Z901
(SENSOR)
X901
X902
L901
S903
(⊕REC)
S904
(PLAY)
S901
(POWER)
S902
(CLOCK/TIMER)
JK903
(PHONES)

REP2477B-M•••[E]
REP2477C-M•••[EB]
REP2477D-M•••[GC]
REP2477E-M•••[GN]
REP2477G-M•••[EG,EP]

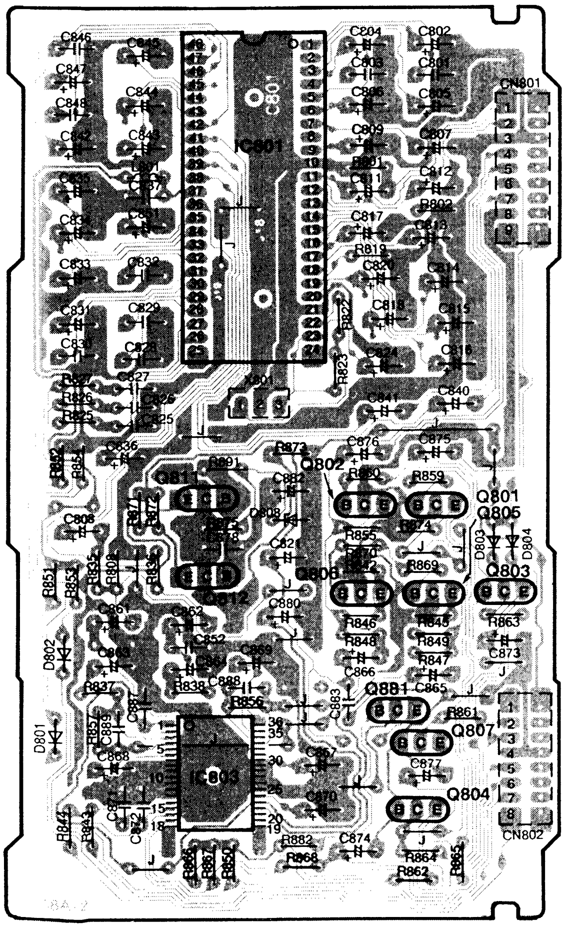
C MIC JACK P.C.B. For [GC,GN] areas.


MIC VOL
(2)
MIC
(1)
CN805
(REP2477D-M•••[GC]
REP2477E-M•••[GN])

F MAIN P.C.B.


For [G
For [EG,EP] areas.
For [GC,GN] areas.
Q301
CP103B
W903A
IC302
W902A
Q309
CP802
Q310
D657

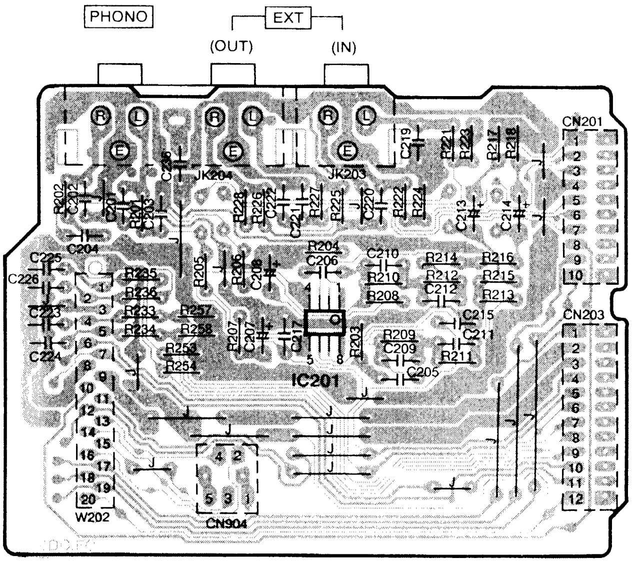
D DOLBY PROLOGIC P.C.B.


IC801
CN801
Q802
Q801
Q805
Q803
Q806
Q881
Q807
Q804
IC803
CN802
D801
D802
D803
D804

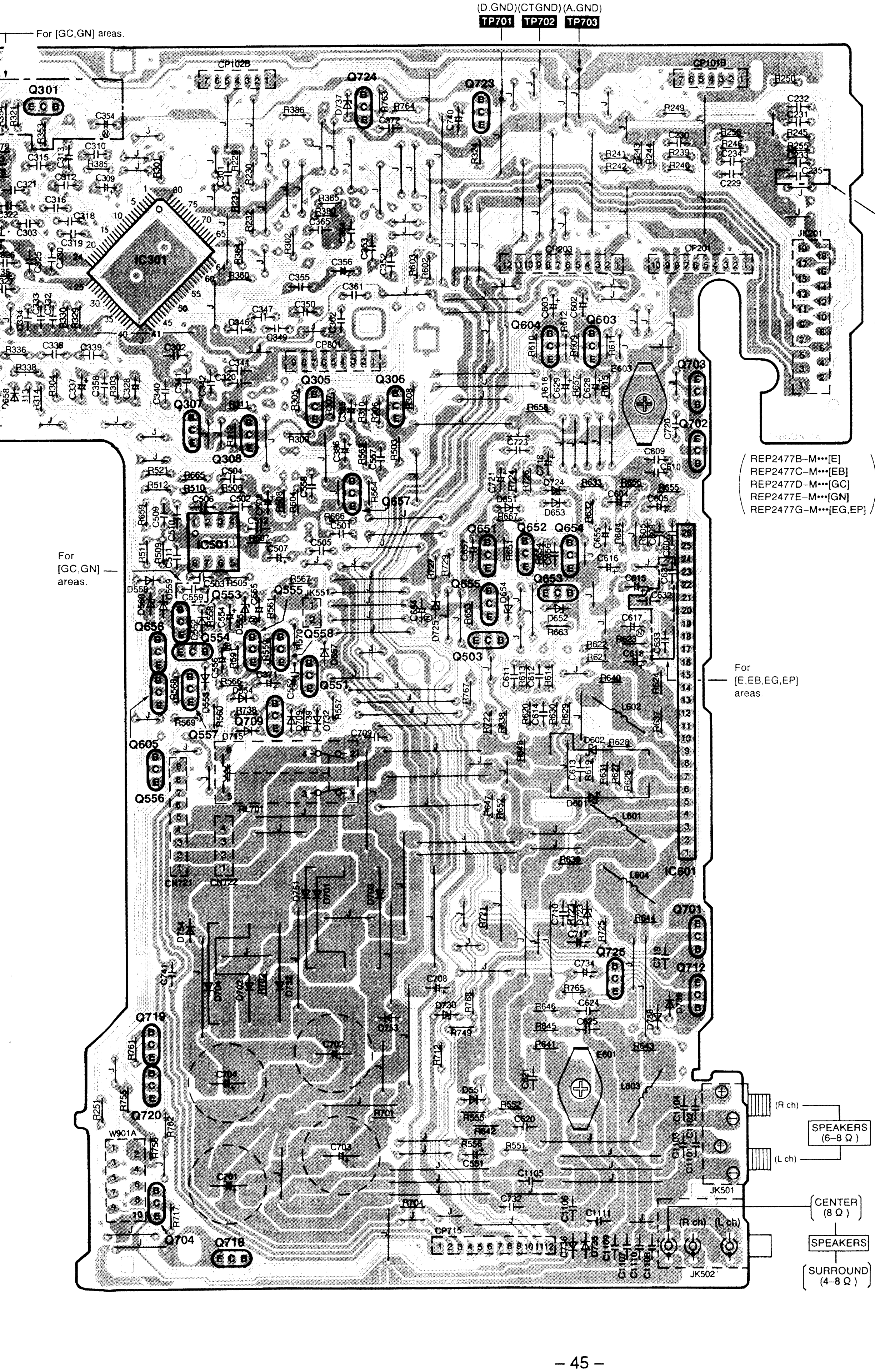
(REP2475B-T)

SH-EH60

E IN/OUT TERMINAL P.C.B.


PHONO
EXT
(OUT)
(IN)
JK204
JK203
CN201
CN203
IC201
W202
CN904

(REP2477B-M•••[E]
REP2477C-M•••[EB]
REP2477D-M•••[GC]
REP2477E-M•••[GN]
REP2477G-M•••[EG,EP])


(D.GND)
(CTGND)
(A.GND)
TP701
TP702
TP703
CP102B
CP101B
Q301
Q724
Q723
IC301
CP203
CP201
JK201
CP801
Q604
Q603
Q305
Q306
Q307
Q308
Q703
Q702
IC501
Q557
Q651
Q652
Q654
Q655
Q653
Q555
Q553
Q656
Q554
Q558
Q551
Q503
Q709
Q605
Q556
RL701
CN721
CN722
IC601
L602
L601
L604
L603
Q701
Q725
Q712
Q719
Q720
W901A
Q704
Q718
CP715
E603
E601
C704
C702
C701
C703
JK501
JK502
(R ch)
(L ch)

For [GC,GN] areas.

For [EG,EP,GC,GN] areas.

RS-EH60
SL-EH60

REP2477B-M•••[E]
REP2477C-M•••[EB]
REP2477D-M•••[GC]
REP2477E-M•••[GN]
REP2477G-M•••[EG,EP]

For [GC,GN] areas.

For [E,EB,EG,EP] areas.

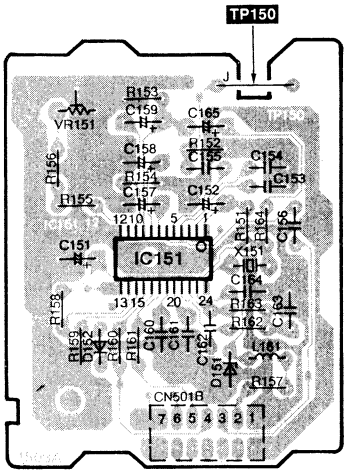
SPEAKERS (6-8 Ω)

CENTER (8 Ω)

SPEAKERS

SURROUND (4-8 Ω)

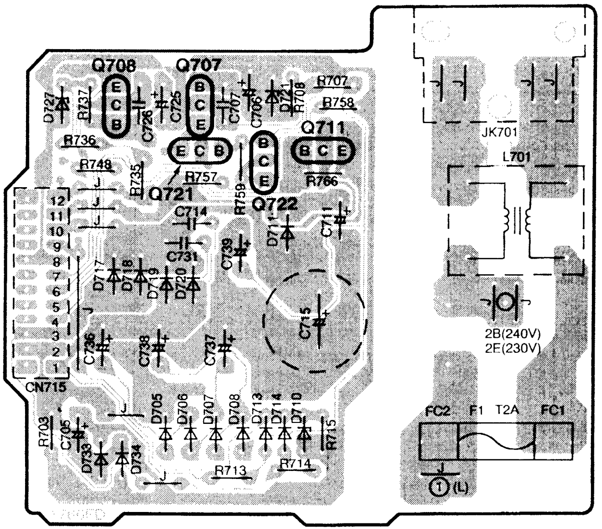
J RDS P.C.B.
For [EG,EP] areas.


TP150
VR151
R153
C159
C165
R156
C158
R152
C155
C154
C153
R154
C157
C152
R155
C151
IC151
X151
R151
R164
C156
C164
R158
R163
C163
R162
R159
D152
R160
R161
C160
C161
C162
L161
D151
R157
CN501B
7 6 5 4 3 2 1

(REP2517A-T)

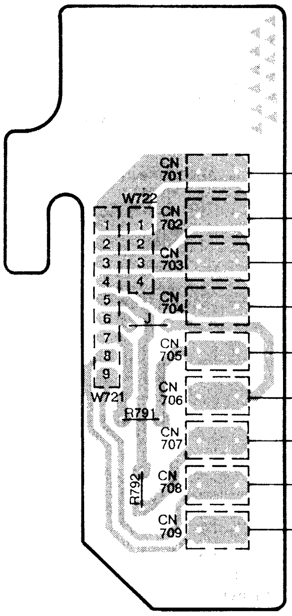
G POWER SUPPLY P.C.B.

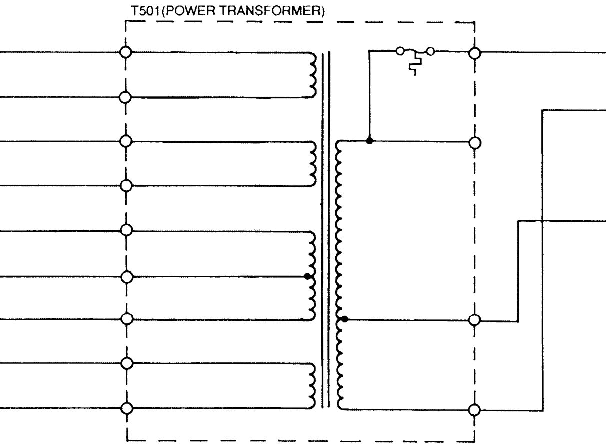
AC IN
230V•••[E,EG,EP]
230-240V•••[EB,GN]
50Hz


Q708
Q707
Q711
Q721
Q722
D727
R737
C726
C725
C707
C706
D721
R708
R707
R758
R736
R748
R735
R757
R759
R766
C714
C731
C739
D711
C711
D717
D718
D719
D720
C715
C736
C738
C737
CN715
R703
C705
D733
D734
D705
D706
D707
D708
D713
D714
D710
R715
R713
R714
JK701
L701
2B(240V)
2E(230V)
FC2
F1
T2A
FC1
①(L)

REP2477B-M•••[E]
REP2477C-M•••[EB]
REP2477E-M•••[GN]
REP2477G-M•••[EG,EP]

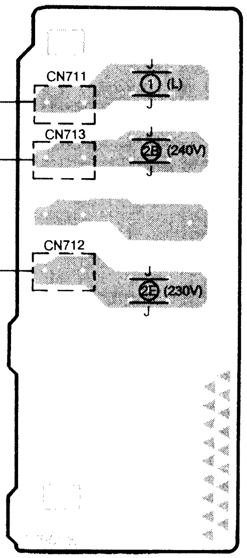
H POWER TRANSFORMER (A) P.C.B.


CN701
W722
CN702
CN703
CN704
CN705
CN706
CN707
CN708
CN709
W721
R791
R792


T501(POWER TRANSFORMER)

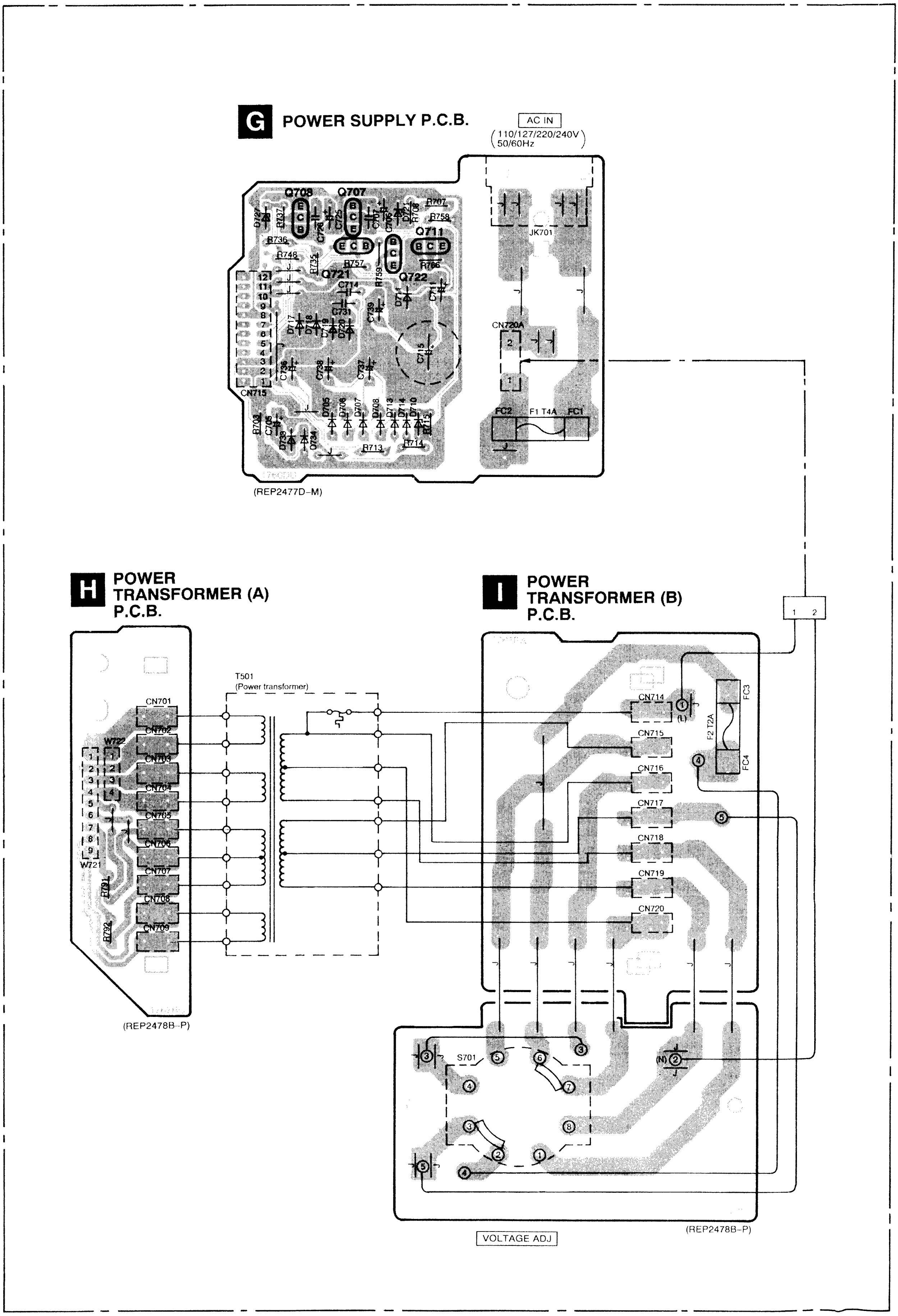
REP2477B-M•••[E]
REP2477C-M•••[EB]
REP2477E-M•••[GN]
REP2477G-M•••[EG,EP]

I POWER TRANSFORMER (B) P.C.B.

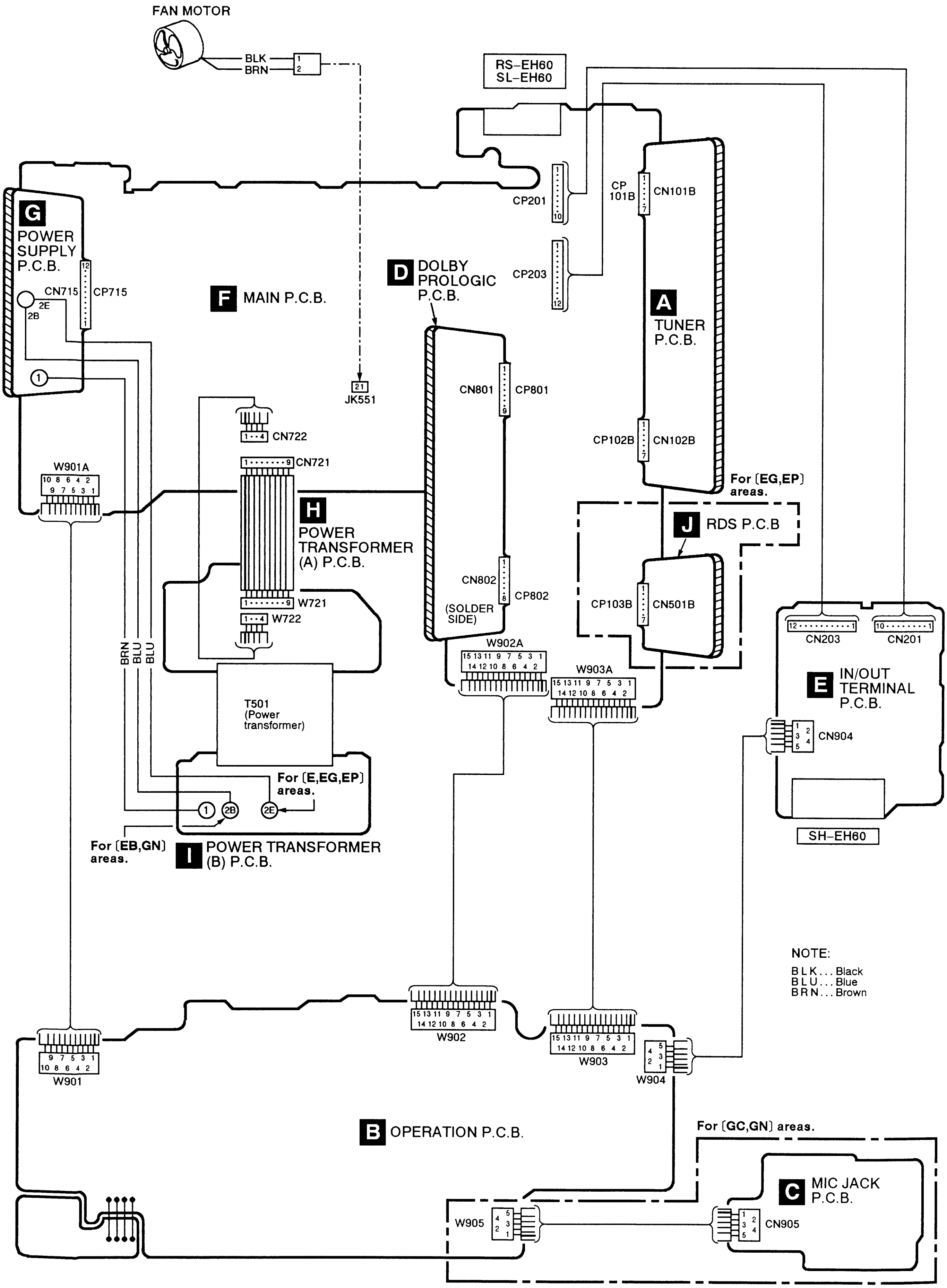

CN711
①(L)
CN713
2B(240V)
CN712
2E(230V)

REP2477B-M•••[E]
REP2477C-M•••[EB]
REP2477E-M•••[GN]
REP2477G-M•••[EG,EP]

POWER SOURCE P.C.B. For [GC] area.


G POWER SUPPLY P.C.B.
AC IN
(110/127/220/240V 50/60Hz)
JK701
Q708
Q707
Q711
Q721
Q722
CN715
CN720A
FC2
F1 T4A
FC1
(REP2477D-M)
H POWER TRANSFORMER (A) P.C.B.
T501
(Power transformer)
CN701
CN702
CN703
CN704
CN705
CN706
CN707
CN708
CN709
W722
W721
R791
R792
(REP2478B-P)
I POWER TRANSFORMER (B) P.C.B.
CN714
CN715
CN716
CN717
CN718
CN719
CN720
F2 T2A
FC3
FC4
S701
(L)
(N)
VOLTAGE ADJ
(REP2478B-P)

■ Wiring Connection Diagram


FAN MOTOR
BLK
BRN
RS–EH60
SL–EH60
CP201
CP 101B
CN101B
CP203
G
POWER SUPPLY P.C.B.
CN715
CP715
2E
2B
①
F MAIN P.C.B.
D DOLBY PROLOGIC P.C.B.
A TUNER P.C.B.
JK551
CN801
CP801
CN722
CN721
CP102B
CN102B
W901A
H POWER TRANSFORMER (A) P.C.B.
For [EG,EP] areas.
J RDS P.C.B
CN802
CP802
(SOLDER SIDE)
W721
W722
CP103B
CN501B
CN203
CN201
BRN
BLU
BLU
W902A
W903A
E IN/OUT TERMINAL P.C.B.
T501 (Power transformer)
CN904
For [E,EG,EP] areas.
2B
2E
For [EB,GN] areas.
I POWER TRANSFORMER (B) P.C.B.
SH–EH60
NOTE:
BLK... Black
BLU... Blue
BRN... Brown
W902
W903
W904
W901
B OPERATION P.C.B.
For [GC,GN] areas.
C MIC JACK P.C.B.
W905
CN905

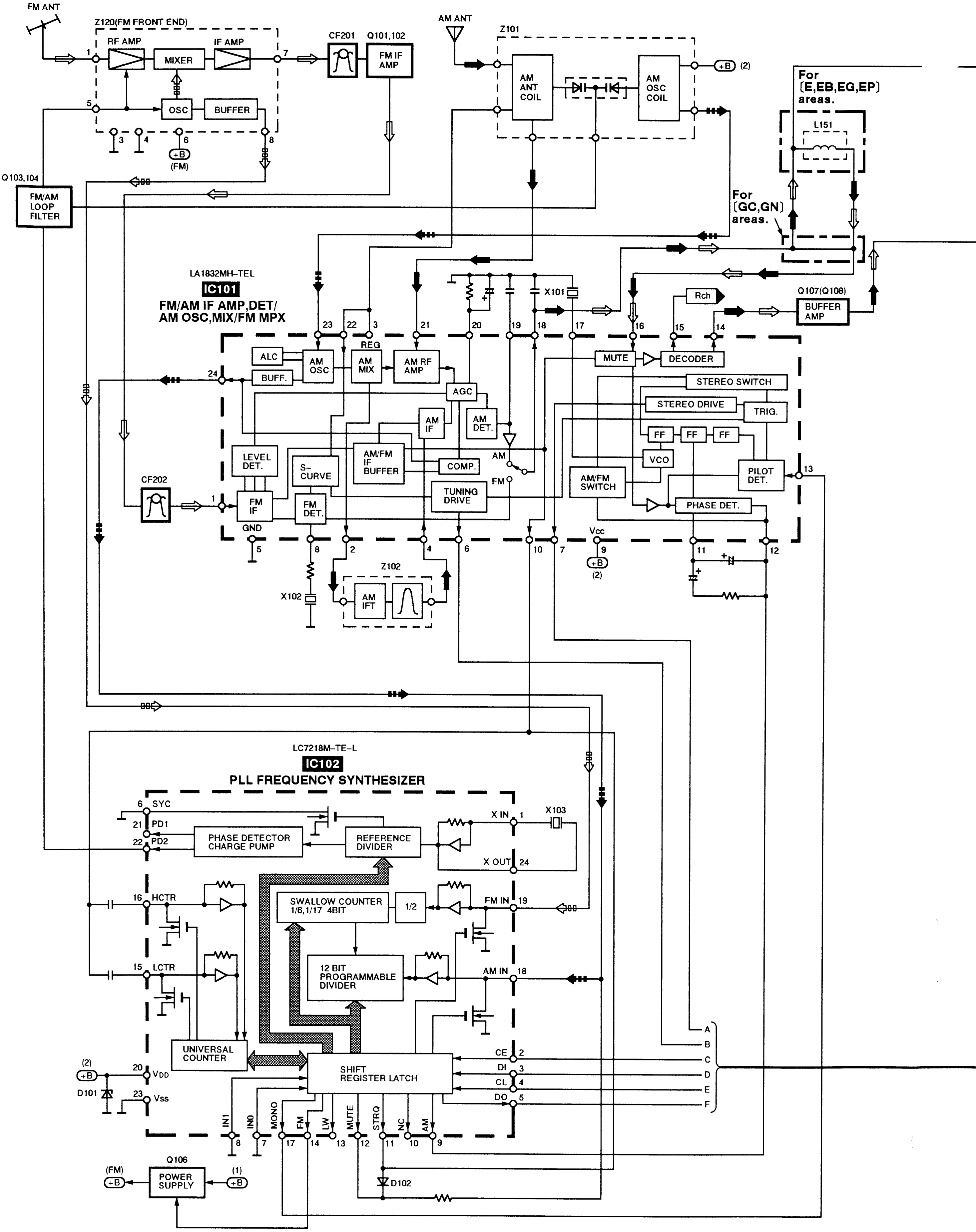
■ Terminal Function of IC's

• IC901 (M38198MC097F) ... For (E), (EB), (EG) and (EP) areas
(M38198MC099F).... For (GC) and (GN) areas : System Control / FL Drive

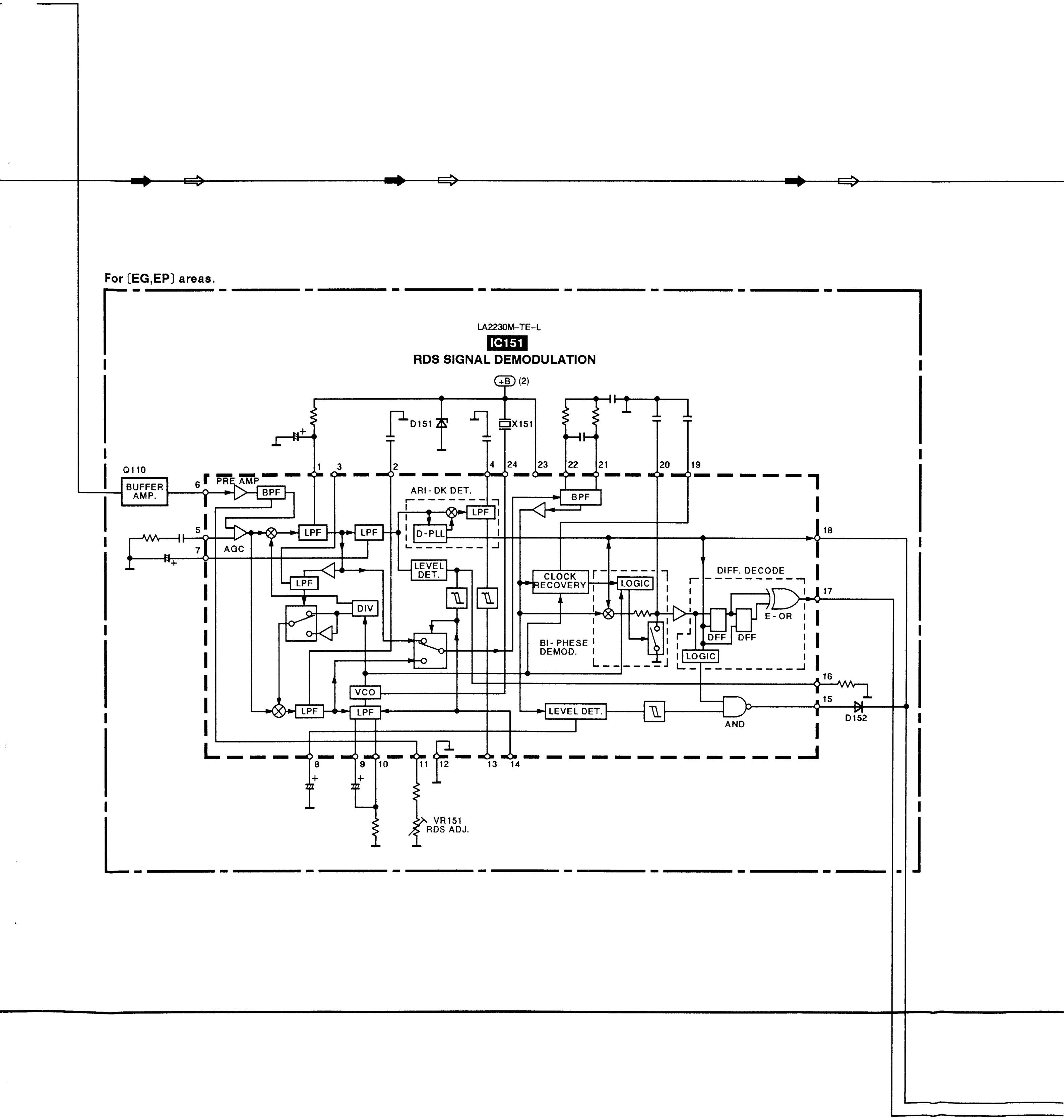
Pin No.	Terminal Name	I/O	Function
1	KEY TU	I	Operation switch signal input (TUNER, TIMER, AMP. section)
2	KEY KRAOKE	I	Operation switch signal input (KARAOKE section)
3	KEY SH	I	SH-EH60 Operation switch signal input
4	KEY CD	I	SL-EH60 Operation switch signal input (CD section)
5	KEY CD2	I	SL-EH60 Operation switch signal input (Changer section)
6	DATA1	O	Data signal output for M62433, M62425, LC7218 and LV1030
7	CLK1	O	Clock signal output for M62433, M62425, LC7218 and LV1030
8	CLK2	O	Clock signal output for M62425 (center and surround volume of dolby pro logic)
9	CLK3	O	Serial communication signal to SH-EH60 (Clock signal output)
10	DATA2	O	Serial communication signal to SH-EH60 (Data signal output)
11	CE2	O	Serial communication signal to SH-EH60 (Chip enable signal output)
12	SEL/TUNER	O	LED (D908) drive signal output (TUNER: "H")
13	SEL/TUNER	O	LED (D908) drive signal output (TUNER: "L")
14	LATCH	O	Latch signal output to M62433FP
15	REQ	O	Request signal output to LV1030
16	CE1	O	Chip enable signal output to LC7218
17	DATA IN	I	Data signal input from LC7218
18	CR TIMER	I/O	TIME CONSTANT terminal
19	CD & DECK CS	I	Serial data communication starting signal input (CD and DECK mechanism)
20	CD & DECK SCLK IN	I	Serial clock input (CD and DECK mechanism)
21	CD & DECK SDA OUT	O	Serial data output (CD and DECK mechanism)
22	CD & DECK SDA IN	I	Serial data input (CD and DECK mechanism)
23	MD REQ	O	Not used, open
24	SEL MD	O	
25	DECK REQ	O	RS-EH60 request signal output
26	CD REQ	O	SL-EH60 request signal output
27	DPL & CHECK	O	Clock check signal terminal
28	RDS DATA	I	Not used, open
29	RDS CLK	I	
30	REMOCON	I	Remote control signal input
31, 32	D1, D2	O	ECHO level set up signal output
33	ECHO	O	

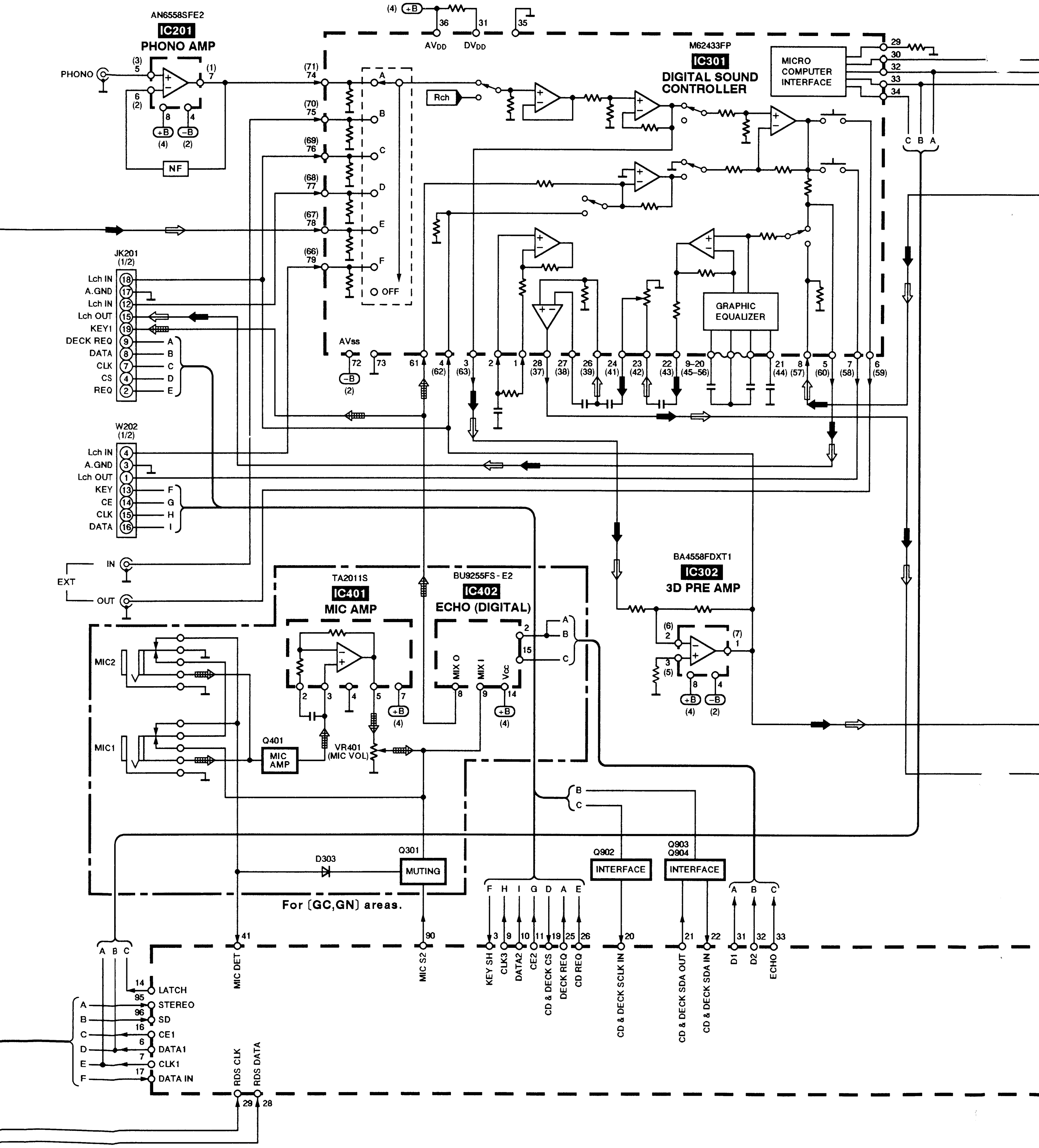
Pin No.	Terminal Name	I/O	Function
34	SYNC	I	AC power source input terminal
35	RESET	I	Reset signal input
36	XC IN	I	Oscillator connected terminal (f = 32 kHz)
37	XC OUT	O	
38	X IN	I	Oscillator connected terminal (f = 6 MHz)
39	X OUT	O	
40	Vss	—	GND terminal
41	MIC DET	I	Microphone connecting detect signal input
42	MUTE	O	Muting signal output
43	VR JOGB	I	Volume control signal input
44	VR JOGA	I	
45	POWER	O	Power control signal output
46	3DVOCAL	O	3D Vocal control signal output
47	NC	—	No used, open
48~54	7G~1G	O	Grid signal and chip select scan signal output
55~85	P31~P1	O	Segment signal output
86, 87	CS0, CS1	I	Chip select signal input
88	SEL TAPE	O	Tape select signal output
89	MIC S1	O	Microphone signal output
90	MIC S2	O	Microphone through signal output
91	VCC	—	Power supply
92	VIBRATE	O	Not used, open
93	CHORUS	O	Not used, open
94	WIDE	O	Not used, open
95	STEREO	I	STEREO signal input for tuner circuit
96	SD	I	Station detector signal input for tuner circuit
97	IJO	I	Unusual condition detect terminal ("L": unusual
98	-VP	—	Reference voltage input (negative)
99	AVSS	—	Connect to GND
100	VREF	—	Reference voltage input (positive)

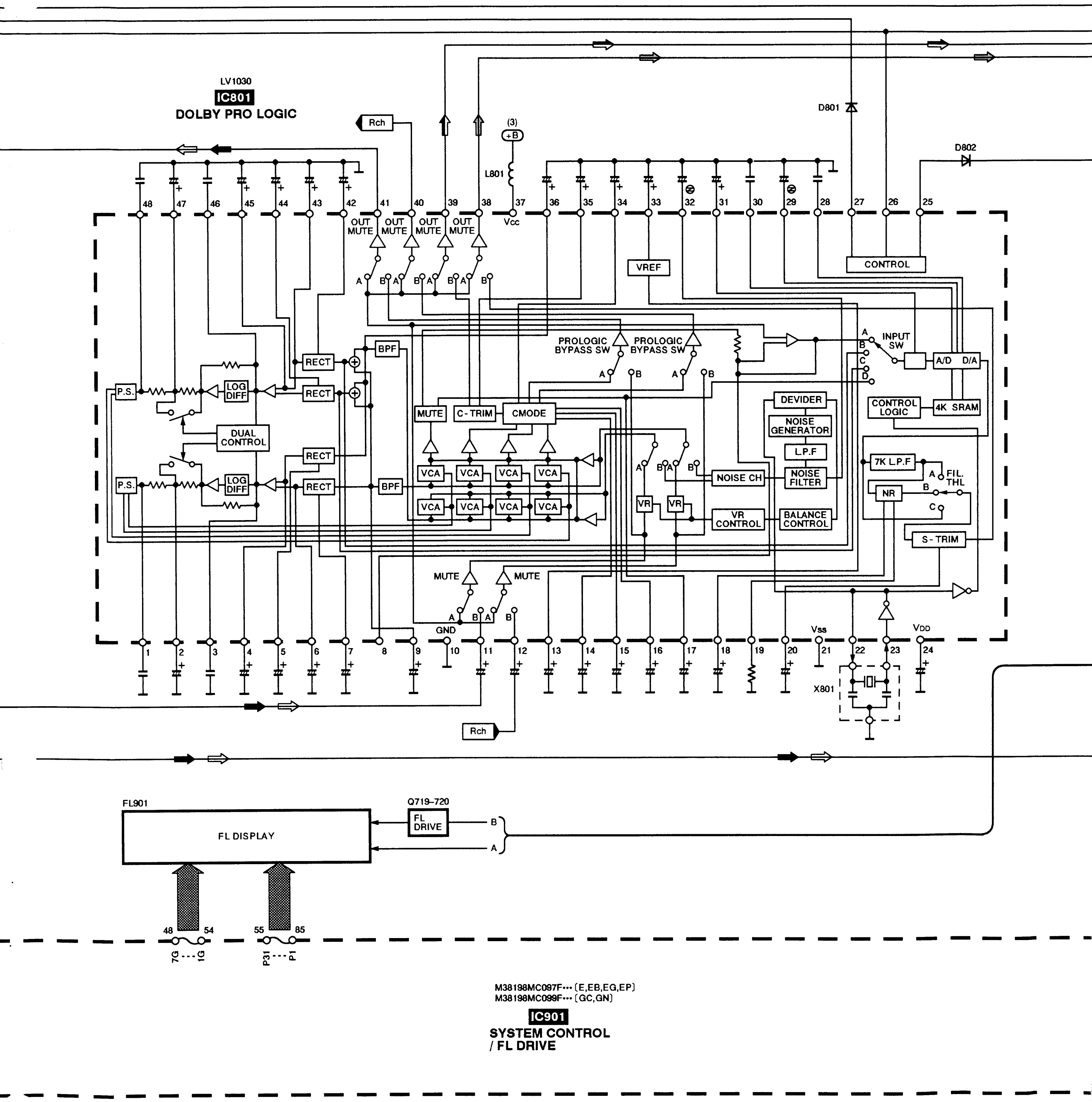
■ Block Diagram

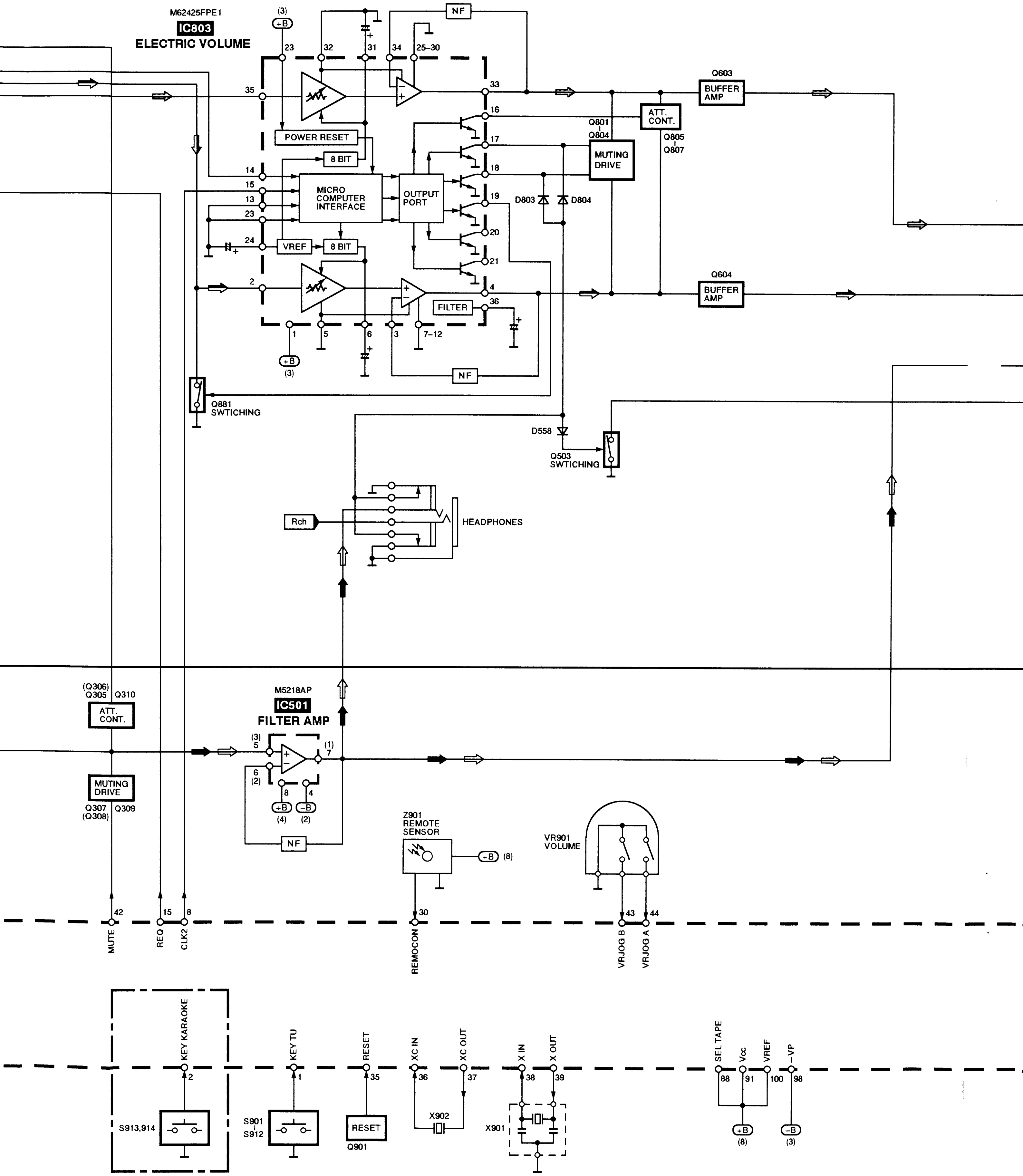

FM ANT
Z120(FM FRONT END)
RF AMP
MIXER
IF AMP
OSC
BUFFER
1
5
7
3
4
6
8
+B
(FM)
CF201
Q101,102
FM IF AMP
AM ANT
Z101
AM ANT COIL
AM OSC COIL
+B (2)
For [E,EB,EG,EP] areas.
L151
For [GC,GN] areas.
Q103,104
FM/AM LOOP FILTER
LA1832MH-TEL
IC101
FM/AM IF AMP,DET/
AM OSC,MIX/FM MPX
23
22
3
21
20
19
18
17
16
15
14
X101
Rch
Q107(Q108)
BUFFER AMP
REG
ALC
AM OSC
AM MIX
AM RF AMP
24
BUFF.
AGC
MUTE
DECODER
STEREO SWITCH
STEREO DRIVE
TRIG.
AM IF
AM DET.
FF
FF
FF
LEVEL DET.
S-CURVE
AM/FM IF BUFFER
COMP.
AM
FM
VCO
TUNING DRIVE
AM/FM SWITCH
PILOT DET.
13
CF202
1
FM IF
FM DET.
PHASE DET.
GND
5
8
2
4
6
10
7
Vcc
9
+B
(2)
11
12
Z102
AM IFT
X102
LC7218M-TE-L
IC102
PLL FREQUENCY SYNTHESIZER
6
SYC
21
PD1
22
PD2
PHASE DETECTOR CHARGE PUMP
REFERENCE DIVIDER
X IN
1
X103
X OUT
24
16
HCTR
SWALLOW COUNTER 1/6,1/17 4BIT
1/2
FM IN
19
15
LCTR
12 BIT PROGRAMMABLE DIVIDER
AM IN
18
UNIVERSAL COUNTER
SHIFT REGISTER LATCH
CE
2
DI
3
CL
4
DO
5
A
B
C
D
E
F
(2)
+B
20
VDD
D101
23
Vss
IN1
IN0
MONO
FM
LW
MUTE
STRQ
NC
AM
8
7
17
14
13
12
11
10
9
D102
Q106
(FM)
+B
POWER SUPPLY
(1)
+B

For (EG,EP) areas.

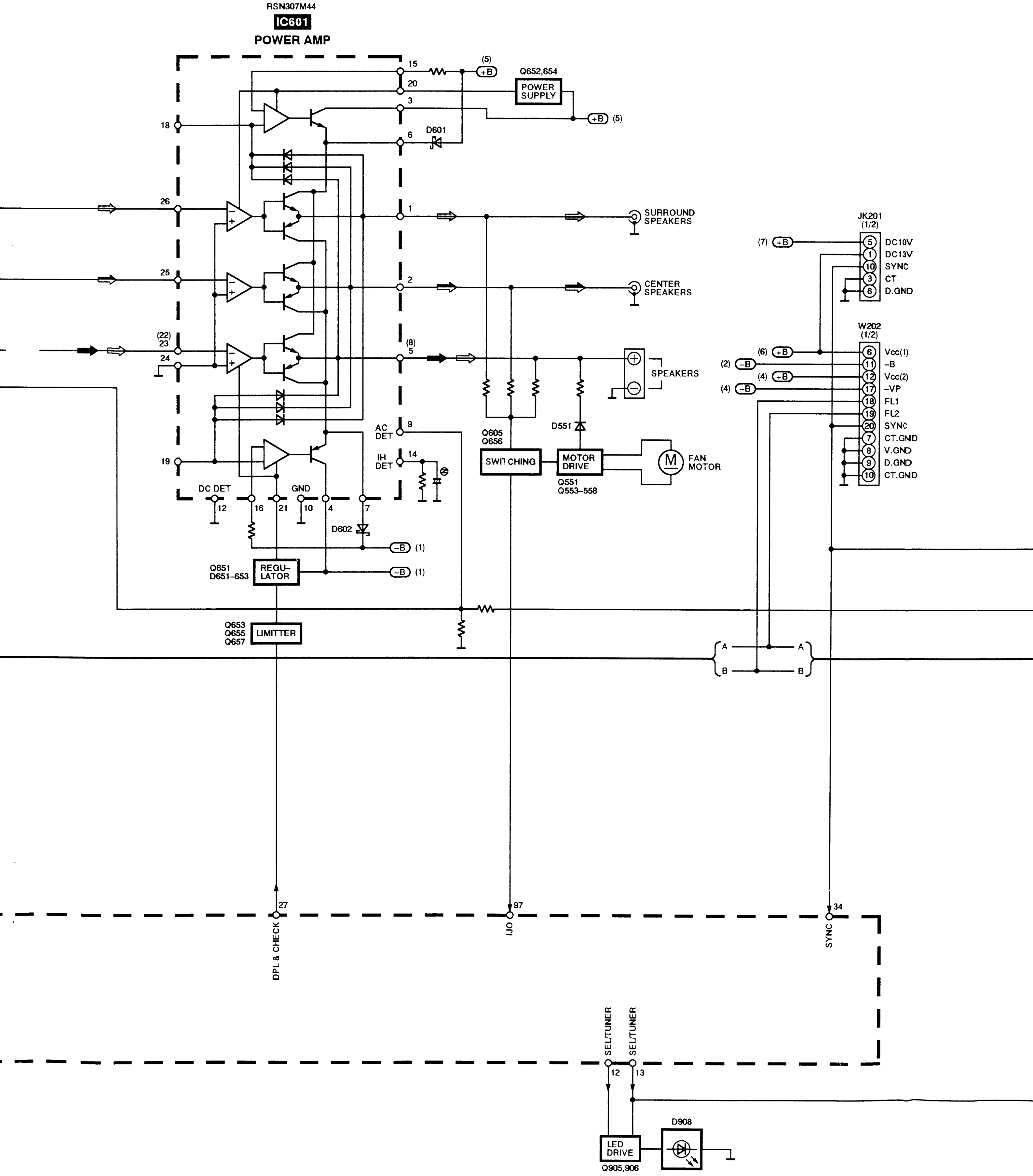

LA2230M–TE–L
IC151
RDS SIGNAL DEMODULATION
+B (2)
D151
X151
Q110
BUFFER AMP.
PRE AMP
BPF
AGC
LPF
LPF
ARI - DK DET.
LPF
D-PLL
LEVEL DET.
LPF
DIV
VCO
LPF
LPF
BPF
CLOCK RECOVERY
LOGIC
BI - PHESE DEMOD.
DIFF. DECODE
DFF
DFF
E - OR
LOGIC
LEVEL DET.
AND
D152
VR151 RDS ADJ.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24


AN6558SFE2
IC201
PHONO AMP
PHONO
NF
M62433FP
IC301
DIGITAL SOUND CONTROLLER
MICRO COMPUTER INTERFACE
AVDD
DVDD
AVSS
Rch
OFF
GRAPHIC EQUALIZER
JK201 (1/2)
Lch IN
A.GND
Lch IN
Lch OUT
KEY1
DECK REQ
DATA
CLK
CS
REQ
W202 (1/2)
Lch IN
A.GND
Lch OUT
KEY
CE
CLK
DATA
EXT
IN
OUT
TA2011S
IC401
MIC AMP
BU9255FS-E2
IC402
ECHO (DIGITAL)
MIX O
MIX I
Vcc
BA4558FDXT1
IC302
3D PRE AMP
MIC2
MIC1
Q401
MIC AMP
VR401 (MIC VOL)
D303
Q301
MUTING
For [GC,GN] areas.
Q902
INTERFACE
Q903
Q904
INTERFACE
LATCH
STEREO
SD
CE1
DATA1
CLK1
DATA IN
RDS CLK
RDS DATA
MIC DET
MIC S2
KEY SH
CLK3
DATA2
CE2
CD & DECK CS
DECK REQ
CD REQ
CD & DECK SCLK IN
CD & DECK SDA OUT
CD & DECK SDA IN
D1
D2
ECHO


LV1030
IC801
DOLBY PRO LOGIC
Rch
(3)
+B
L801
D801
D802
Vcc
OUT MUTE
OUT MUTE
OUT MUTE
OUT MUTE
VREF
CONTROL
PROLOGIC BYPASS SW
PROLOGIC BYPASS SW
INPUT SW
A/D
D/A
4K SRAM
CONTROL LOGIC
7K L.P.F
FIL. THL
NR
S-TRIM
DEVIDER
NOISE GENERATOR
L.P.F
NOISE FILTER
NOISE CH
BALANCE CONTROL
VR CONTROL
VR
BPF
RECT
LOG DIFF
P.S.
DUAL CONTROL
MUTE
C-TRIM
CMODE
VCA
MUTE
GND
Vss
VDD
X801
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
FL901
FL DISPLAY
Q719–720
FL DRIVE
B
A
48
54
55
85
7G ··· 1G
P31 ··· P1
M38198MC097F··· (E,EB,EG,EP)
M38198MC099F··· (GC,GN)
IC901
SYSTEM CONTROL
/ FL DRIVE


M62425FPE1
IC803
ELECTRIC VOLUME
(3)
+B
NF
23
32
31
34
25–30
35
33
16
17
18
19
20
21
4
36
14
15
13
23
24
2
1
5
6
3
7–12
POWER RESET
8 BIT
MICRO COMPUTER INTERFACE
OUTPUT PORT
VREF
8 BIT
FILTER
NF
Q603
BUFFER AMP
Q604
BUFFER AMP
ATT. CONT.
Q801
Q804
Q805
Q807
MUTING DRIVE
D803
D804
Q881 SWTICHING
D558
Q503 SWTICHING
Rch
HEADPHONES
(Q306)
Q305
Q310
ATT. CONT.
MUTING DRIVE
Q307
(Q308)
Q309
M5218AP
IC501
FILTER AMP
(3) 5
6 (2)
(1) 7
8
4
+B
-B
(4)
(2)
NF
Z901 REMOTE SENSOR
+B (8)
VR901 VOLUME
42
15
8
30
43
44
MUTE
REQ
CLK2
REMOCON
VRJOG B
VRJOG A
KEY KARAOKE
KEY TU
RESET
XC IN
XC OUT
X IN
X OUT
SEL TAPE
Vcc
VREF
–VP
2
1
35
36
37
38
39
88
91
100
98
S913,914
S901
S912
RESET
Q901
X902
X901
+B
(8)
-B
(3)

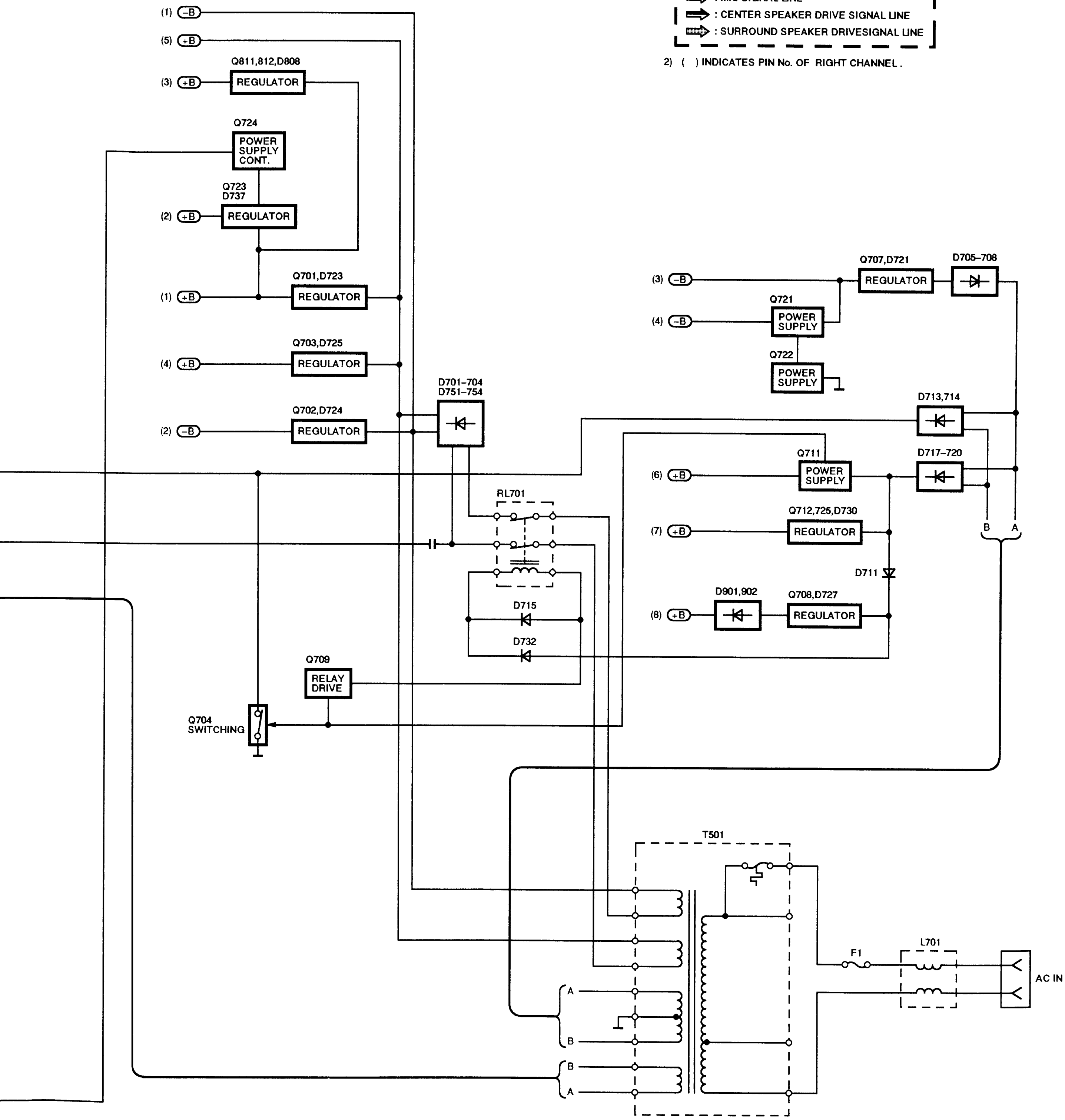
For〔EG,EP,GC,GN〕areas.


RSN307M44
IC601
POWER AMP
15
20
3
6
18
26
25
(22)
23
24
19
1
2
(8)
5
9
14
(5)
+B
Q652,654
POWER SUPPLY
+B (5)
D601
SURROUND SPEAKERS
CENTER SPEAKERS
SPEAKERS
AC DET
IH DET
DC DET
GND
12
16
21
10
4
7
D602
-B (1)
-B (1)
Q651
D651–653
REGU-LATOR
Q653
Q655
Q657
LIMITTER
Q605
Q656
SWITCHING
MOTOR DRIVE
Q551
Q553–558
D551
M
FAN MOTOR
JK201
(1/2)
(7) +B
5 DC10V
1 DC13V
10 SYNC
3 CT
6 D.GND
W202
(1/2)
(6) +B
(2) -B
(4) +B
(4) -B
6 Vcc(1)
11 -B
12 Vcc(2)
17 -VP
18 FL1
19 FL2
20 SYNC
7 CT.GND
8 V.GND
9 D.GND
10 CT.GND
A
A
B
B
27
DPL & CHECK
97
IJO
34
SYNC
SEL/TUNER
SEL/TUNER
12
13
LED DRIVE
Q905,906
D908

NOTES:
1)

⇨ : FM SIGNAL LINE
▯▯⇨ : FM OSC SIGNAL LINE
➡ : AM SIGNAL LINE
▮▮➡ : AM OSC SIGNAL LINE
▥⇨ : MIC SIGNAL LINE
⇨ : CENTER SPEAKER DRIVE SIGNAL LINE
⇨ : SURROUND SPEAKER DRIVESIGNAL LINE

2) ( ) INDICATES PIN No. OF RIGHT CHANNEL .



(1) -B
(5) +B
Q811,812,D808
(3) +B
REGULATOR
Q724
POWER SUPPLY CONT.
Q723
D737
(2) +B
REGULATOR
Q701,D723
(1) +B
REGULATOR
Q703,D725
(4) +B
REGULATOR
D701–704
D751–754
Q702,D724
(2) -B
REGULATOR
RL701
D715
D732
Q709
RELAY DRIVE
Q704
SWITCHING
Q707,D721
REGULATOR
D705–708
(3) -B
Q721
(4) -B
POWER SUPPLY
Q722
POWER SUPPLY
D713,714
Q711
(6) +B
POWER SUPPLY
D717–720
Q712,725,D730
(7) +B
REGULATOR
B
A
D711
D901,902
Q708,D727
(8) +B
REGULATOR
T501
F1
L701
AC IN
A
B
B
A

Replacement Parts List (Electrical) [For (E) and (EB) areas]

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*[M] Indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101	LA1832MH-TEL	IC	[M]
IC102	LC7218M-TE-L	IC	[M]
IC201	AN6558SFE2	IC	[M]
IC301	M62433FP	IC	[M]
IC302	BA4558FDXT1	IC	[M]
IC501	M5218AP	IC	[M]
IC601⚠	RSN307M44	IC	[M]
IC801	LV1030	IC	[M]
IC803	M62425FPE1	IC	[M]
IC901	M38198MC097F	IC	[M]
		TRANSISTOR(S)	
Q101, 102	2SC2787L	TRANSISTOR	[M]
Q103, 104	2SC2785FE	TRANSISTOR	[M]
Q106	UN411FTA	TRANSISTOR	[M]
Q107, 108	2SC3311AR	TRANSISTOR	[M]
Q305, 306	2SC3311AIRTA	TRANSISTOR	[M]
Q307, 308	2SD2144S	TRANSISTOR	[M]
Q309, 310	UN4115	TRANSISTOR	[M]
Q503	2SD1450RTA	TRANSISTOR	[M]
Q551	2SA1309AIRTA	TRANSISTOR	[M]
Q553	2SD2144S	TRANSISTOR	[M]
Q554	2SA1309AIRTA	TRANSISTOR	[M]
Q555	2SD2144S	TRANSISTOR	[M]
Q556	2SC3311AIRTA	TRANSISTOR	[M]
Q557	2SA1309AIRTA	TRANSISTOR	[M]
Q558	2SD2144S	TRANSISTOR	[M]
Q603-605	2SC3311AIRTA	TRANSISTOR	[M]
Q651⚠	2SB1238QRTV6	TRANSISTOR	[M]
Q652	2SD1859QRTV2	TRANSISTOR	[M]
Q653	UN4111	TRANSISTOR	[M]
Q654	2SD1859QRTV2	TRANSISTOR	[M]
Q655	UN4211	TRANSISTOR	[M]
Q656	2SC3311AIRTA	TRANSISTOR	[M]
Q657	UN4111	TRANSISTOR	[M]
Q701⚠	2SD2374PQAU	TRANSISTOR	[M]
Q702⚠	2SB1548PQAU	TRANSISTOR	[M]
Q703⚠	2SD2374PQAU	TRANSISTOR	[M]
Q704	UN4211	TRANSISTOR	[M]
Q707⚠	2SB621A-R	TRANSISTOR	[M]
Q708⚠	2SD2137PQTA	TRANSISTOR	[M]
Q709	2SD2144S	TRANSISTOR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
Q711	2SB1417PQTA	TRANSISTOR	[M]
Q712⚠	2SB1548PQAU	TRANSISTOR	[M]
Q718	UN4111	TRANSISTOR	[M]
Q719, 720	2SD1450RTA	TRANSISTOR	[M]
Q721	2SC3311AIRTA	TRANSISTOR	[M]
Q722	2SA1309AIRTA	TRANSISTOR	[M]
Q723⚠	2SC3940AQSTA	TRANSISTOR	[M]
Q724	UN4211	TRANSISTOR	[M]
Q725⚠	2SC3311AIRTA	TRANSISTOR	[M]
Q801, 802	2SD1450RTA	TRANSISTOR	[M]
Q803, 804	UN4115	TRANSISTOR	[M]
Q805, 806	2SD1450RTA	TRANSISTOR	[M]
Q807	UN4115	TRANSISTOR	[M]
Q811, 812⚠	2SD2137PQTA	TRANSISTOR	[M]
Q881	2SD1450RTA	TRANSISTOR	[M]
Q901	UN4214TA	TRANSISTOR	[M]
Q902-904	2SC3311AIRTA	TRANSISTOR	[M]
Q905, 906	UN411FTA	TRANSISTOR	[M]
		DIODE(S)	
D101⚠	MA4051MTA	DIODE	[M]
D102	MA165	DIODE	[M]
D331	MA4051-L	DIODE	[M]
D551, 552	MA165	DIODE	[M]
D553	MA700TA	DIODE	[M]
D554	MA165	DIODE	[M]
D555	MA4100MTA	DIODE	[M]
D557, 558	MA165	DIODE	[M]
D559, 560	MA4020LTA	DIODE	[M]
D601, 602	SB360L6508	DIODE	[M]
D651⚠	MA4200M	DIODE	[M]
D652, 653⚠	MA4140M	DIODE	[M]
D654	MA4030MTA	DIODE	[M]
D657, 658	MA165	DIODE	[M]
D701-704⚠	1N5402BF	DIODE	[M]
D705-708⚠	RL1N4003N02	DIODE	[M]
D709	MA165	DIODE	[M]
D710	MA4051MTA	DIODE	[M]
D711	RL1N4003N02	DIODE	[M]
D713, 714⚠	MA185TA	DIODE	[M]
D715	MA165	DIODE	[M]
D717-720⚠	RL1N4003N02	DIODE	[M]
D721⚠	MA4300M	DIODE	[M]
D723⚠	MA4150M	DIODE	[M]
D724, 725⚠	MA4082LTA	DIODE	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
D727⚠	MA4062-H	DIODE	[M]
D730⚠	MA4100MTA	DIODE	[M]
D732-736	MA165	DIODE	[M]
D737⚠	MA4082LTA	DIODE	[M]
D738, 739	MA165	DIODE	[M]
D751, 752⚠	1N5402BF	DIODE	[M]
D753, 754⚠	RL1N4003N02	DIODE	[M]
D801-804	MA165	DIODE	[M]
D808⚠	MA4120	DIODE	[M]
D901, 902	1SS291TA	DIODE	[M]
D903, 904	MA165	DIODE	[M]
D905	1SS291TA	DIODE	[M]
D906, 907	MA165	DIODE	[M]
D908	SPR505MDTT	L. E. D.	[M]
D909	MA165	DIODE	[M]
D931	MA165	DIODE	[M]
D935-938	MA165	DIODE	[M]
D940	MA165	DIODE	[M]
D942	MA165	DIODE	[M]
D971, 972	MA165	DIODE	[M]
D973	MA4039MTA	DIODE	[M]
		VARIABLE RESISTOR(S)	
VR901	EVQVBXFK124B	V. R	[M]
		COMPONENT COMBINATION(S)	
Z101	RLA2Z002M-T	COMPONENT COMBINATION	[M]
Z102	RLI2Z006M-T	COMPONENT COMBINATION	[M]
Z120	RAL0019	FM FRONT END	[M]
Z901	RCDGP1U28XD	REMOTE SENSOR	[M]
		COIL(S)	
L101	ELESNR68MA	COIL	[M]
L103	ELEXTR47MA9	COIL	[M]
L105, 106	ELELN822KL	COIL	[M]
L151	SLM1B10M-1M	COIL	[M]
L191	ELESNR68MA	COIL	[M]
L601-604	SLQY07G-40	COIL	[M]
L701⚠	RLQZ271M-K	COIL	[M]
L801	ELEXT100KA9	COIL	[M]
L901	RLQA100JT-Y	COIL	[M]
		TRANSFORMER(S)	
T501⚠	RTP2N5B006	POWER TRANSFORMER	[M]
		FILTER(S)	
CF201	RLFFETNGD01L	CERAMIC FILTER	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
CF202	RLFFETMGD01L	CERAMIC FILTER	[M]
		OSCILLATOR(S)	
X101	RSXZ456KM07M	OSCILLATOR	[M]
X102	RLFDGT05DD	OSCILLATOR	[M]
X103	RSXC7M20S05T	OSCILLATOR	[M]
X801	EF0EC8004T4	OSCILLATOR	[M]
X901	EF0EC6004T4	OSCILLATOR	[M]
X902	RSXD32K7S02	OSCILLATOR	[M]
		DISPLAY TUBE	
FL901	RSL0234-F	DISPLAY TUBE	[M]
		FUSE(S)	
F1⚠	XBA2C20TB0	FUSE, 250V, T2A	[M]
		SWITCH(ES)	
S901-912	EVQ21405R	SW	[M]
		CONNECTOR(S)	
CN201	RJU057W010	CONNECTOR(10P)	[M]
CN203	RJU057W012	CONNECTOR(12P)	[M]
CN701-709	RJS1A1101T1	CONNECTOR(1P)	[M]
CN711-713	RJS1A1101T1	CONNECTOR(1P)	[M]
CN715	RJU057W012	CONNECTOR(12P)	[M]
CN721	RJS9T5ZA	CONNECTOR(9P)	[M]
CN722	RJS4T5ZA	CONNECTOR(4P)	[M]
CN801	RJU057W009	CONNECTOR(9P)	[M]
CN802	RJU057W008	CONNECTOR(8P)	[M]
CN904	RJS2A2105	CONNECTOR(5P)	[M]
CN101B	RJU057W007	CONNECTOR(7P)	[M]
CN102B	RJU057W007	CONNECTOR(7P)	[M]
CP201	RJT057W010-1	CONNECTOR(10P)	[M]
CP203	RJT057W012-1	CONNECTOR(12P)	[M]
CP715	RJT057W012-1	CONNECTOR(12P)	[M]
CP801	RJT057W009-1	CONNECTOR(9P)	[M]
CP802	RJT057W008-1	CONNECTOR(8P)	[M]
CP101B	RJT057W007-1	CONNECTOR(7P)	[M]
CP102B	RJT057W007-1	CONNECTOR(7P)	[M]
		EARTH TERMINAL(S)	
E601	SNE1004-2	EARTH TERMINAL	[M]
E603	SNE1004-2	EARTH TERMINAL	[M]
		FUSE HOLDER(S)	

Ref. No.	Part No.	Part Name & Description	Remarks
FC1,2	EYF52BC	FUSE HOLDER	[M]
		RELAY(S)	
RL701⚠	RSY0030-C	RELAY	[M]
		JACK(S)	
JK101	RJH5210M	ANTENNA	[M]
JK201	RJT065K19	SYSTEM	[M]
JK203	SJF3068-7N	EXT IN	[M]
JK204	SJF3069-5N	PHONO/EXT OUT	[M]
JK501	RJR0054M	SPEAKERS	[M]
JK502	RJH2305	SURROUND/CENTER SPEAKERS	[M]
JK551	SJT3213	FAN MOTOR	[M]
JK701⚠	SJS9236	AC INLET	[M]
JK903	RJJ37TN01-C	HEADPHONES	[M]

■ Resistors and Capacitors [For (E) and (EB) areas]

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R103	ERDS2TJ330	1/4W 33 [M]
R104	ERDS2TJ103	1/4W 10K [M]
R105	ERDS2TJ471	1/4W 470 [M]
R106	ERDS2TJ474	1/4W 470K [M]
R107	ERDS2TJ331	1/4W 330 [M]
R108	ERDS2TJ474	1/4W 470K [M]
R109	ERDS2TJ331	1/4W 330 [M]
R110	ERDS2TJ102	1/4W 1K [M]
R112	ERDS2TJ104	1/4W 100K [M]
R113	ERDS2TJ103	1/4W 10K [M]
R114	ERDS2TJ562	1/4W 5.6K [M]
R115	ERDS2TJ561	1/4W 560 [M]
R116	ERDS2TJ102	1/4W 1K [M]
R117	ERDS2TJ823T	1/4W 82K [M]
R118	ERDS2TJ562	1/4W 5.6K [M]
R119	ERDS2TJ822	1/4W 8.2K [M]
R120	ERDS2TJ473	1/4W 47K [M]
R121	ERDS2TJ332	1/4W 3.3K [M]
R122	ERDS2TJ272T	1/4W 2.7K [M]
R124	ERDS2TJ271	1/4W 270 [M]
R125, 126	ERDS2TJ152	1/4W 1.5K [M]
R127	ERDS2TJ103	1/4W 10K [M]
R128	ERDS2TJ820	1/4W 82 [M]
R129	ERDS2TJ473	1/4W 47K [M]
R130	ERDS2TJ103	1/4W 10K [M]
R132	ERDS2TJ103	1/4W 10K [M]
R133-137	ERDS2TJ102	1/4W 1K [M]
R138	ERDS2TJ103	1/4W 10K [M]
R139, 140	ERDS2TJ272T	1/4W 2.7K [M]
R141, 142	ERDS2TJ102	1/4W 1K [M]
R143, 144	ERDS2TJ222	1/4W 2.2K [M]
R145, 146	ERDS2TJ821	1/4W 820 [M]
R147, 148	ERDS2TJ474	1/4W 470K [M]
R149	ERDS2TJ680T	1/4W 68 [M]
R171, 172	ERDS2TJ102	1/4W 1K [M]
R173	ERDS2TJ471	1/4W 470 [M]
R175	ERDS2TJ102	1/4W 1K [M]
R176	ERDS2TJ391	1/4W 390 [M]
R201, 202	ERDS2TJ102	1/4W 1K [M]
R203, 204	ERDS2TJ473	1/4W 47K [M]
R205, 206	ERDS2TJ331	1/4W 330 [M]
R207, 208	ERDS2TJ271	1/4W 270 [M]
R209, 210	ERDS2TJ184T	1/4W 180K [M]
R211, 212	ERDS2TJ123	1/4W 12K [M]
R213, 214	ERDS2TJ680T	1/4W 68 [M]
R215, 216	ERDS2TJ272T	1/4W 2.7K [M]

Ref. No.	Part No.	Values & Remarks
R217, 218	ERDS2TJ392T	1/4W 3.9K [M]
R221, 222	ERDS2FJ752	1/4W 7.5K [M]
R223, 224	ERDS2TJ562	1/4W 5.6K [M]
R225, 226	ERDS2TJ104	1/4W 100K [M]
R227, 228	ERDS2TJ222	1/4W 2.2K [M]
R229, 230	ERDS2TJ822	1/4W 8.2K [M]
R231-234	ERDS2TJ682T	1/4W 6.8K [M]
R235, 236	ERDS2TJ102	1/4W 1K [M]
R239-242	ERDS2TJ102	1/4W 1K [M]
R243, 244	ERDS2TJ152	1/4W 1.5K [M]
R245, 246	ERDS2TJ332	1/4W 3.3K [M]
R249, 250	ERDS2TJ101	1/4W 100 [M]
R251	ERDS2TJ222	1/4W 2.2K [M]
R253, 254	ERDS2TJ104	1/4W 100K [M]
R255, 256	ERDS2TJ123	1/4W 12K [M]
R257, 258	ERDS2TJ562	1/4W 5.6K [M]
R301	ERDS2TJ223	1/4W 22K [M]
R302	ERDS2TJ472	1/4W 4.7K [M]
R303, 304	ERDS2TJ222	1/4W 2.2K [M]
R305, 306	ERDS2TJ122	1/4W 1.2K [M]
R307, 308	ERDS2TJ104	1/4W 100K [M]
R309, 310	ERDS2TJ102	1/4W 1K [M]
R311, 312	ERDS2TJ104	1/4W 100K [M]
R313, 314	ERDS2EJ121	1/4W 120 [M]
R315	ERDS2TJ104	1/4W 100K [M]
R316	ERDS2TJ222	1/4W 2.2K [M]
R317	ERDS2TJ105T	1/4W 1M [M]
R318	ERDS2TJ153	1/4W 15K [M]
R324	ERDS2TJ223	1/4W 22K [M]
R326	ERDS2TJ332	1/4W 3.3K [M]
R327	ERDS2TJ392T	1/4W 3.9K [M]
R328	ERDS2TJ332	1/4W 3.3K [M]
R329	ERDS2TJ103	1/4W 10K [M]
R330	ERDS2TJ332	1/4W 3.3K [M]
R331	ERDS2TJ102	1/4W 1K [M]
R332-334	ERDS2TJ222	1/4W 2.2K [M]
R335, 336	ERDS2TJ683	1/4W 68K [M]
R338	ERDS2TJ392T	1/4W 3.9K [M]
R343	ERDS2TJ334	1/4W 330K [M]
R360	ERDS2TJ223	1/4W 22K [M]
R364	ERDS2TJ103	1/4W 10K [M]
R365	ERDS2TJ223	1/4W 22K [M]
R371, 372	ERDS2TJ103	1/4W 10K [M]
R373-376	ERDS2TJ223	1/4W 22K [M]
R378, 379	ERDS2TJ182	1/4W 1.8K [M]
R380-382	ERDS2TJ153	1/4W 15K [M]
R385, 386	ERDS2TJ222	1/4W 2.2K [M]
R503, 504	ERDS2TJ333	1/4W 33K [M]
R505, 506	ERDS2TJ153	1/4W 15K [M]

Ref. No.	Part No.	Values & Remarks
R507, 508	ERDS2TJ332	1/4W 3.3K [M]
R509-512	ERDS2TJ560T	1/4W 56 [M]
R521	ERDS2TJ561	1/4W 560 [M]
R551	ERDS2TJ183T	1/4W 18K [M]
R552	ERDS2TJ473	1/4W 47K [M]
R555	ERDS2TJ223	1/4W 22K [M]
R556	ERDS2TJ104	1/4W 100K [M]
R557	ERDS2TJ472	1/4W 4.7K [M]
R558	ERDS2TJ102	1/4W 1K [M]
R559	ERDS2TJ472	1/4W 4.7K [M]
R560, 561	ERDS2TJ104	1/4W 100K [M]
R563, 564	ERDS2TJ273	1/4W 27K [M]
R566	ERDS2TJ683	1/4W 68K [M]
R567	ERG1SJ220	1W 22 [M]
R568	ERDS2TJ101	1/4W 100 [M]
R569	ERDS2TJ103	1/4W 10K [M]
R570	ERDS2TJ225	1/4W 2.2M [M]
R591	ERDS2TJ473	1/4W 47K [M]
R602, 603	ERDS2TJ221	1/4W 220 [M]
R604, 605	ERDS2TJ103	1/4W 10K [M]
R609, 610	ERDS2TJ563	1/4W 56K [M]
R611, 612	ERDS2TJ332	1/4W 3.3K [M]
R613	ERDS2TJ104	1/4W 100K [M]
R614	ERDS2TJ124T	1/4W 120K [M]
R615, 616	ERDS2TJ182	1/4W 1.8K [M]
R619, 620	ERDS2TJ563	1/4W 56K [M]
R621	ERDS2TJ273	1/4W 27K [M]
R622	ERDS2TJ473	1/4W 47K [M]
R623	ERDS2TJ474	1/4W 470K [M]
R624	ERDS2TJ223	1/4W 22K [M]
R626	ERDS2TJ154	1/4W 150K [M]
R627	ERDS2TJ124T	1/4W 120K [M]
R628	ERDS2TJ184T	1/4W 180K [M]
R629	ERDS2TJ683	1/4W 68K [M]
R630	ERDS2TJ473	1/4W 47K [M]
R631	ERDS2TJ224T	1/4W 220K [M]
R632, 633	ERDS2TJ563	1/4W 56K [M]
R637	ERDS2TJ154	1/4W 150K [M]
R638	ERDS2TJ684	1/4W 680K [M]
R639-646⚠	ERDS1FVJ100T	1/2W 10 [M]
R647, 648	ERQ16NKWR15E	1/6W 0.15 [M]
R651	ERDS2TJ222	1/4W 2.2K [M]
R652	ERDS2TJ393	1/4W 39K [M]
R653	ERDS2TJ272T	1/4W 2.7K [M]
R654	ERDS2TJ222	1/4W 2.2K [M]
R655-658	ERDS2TJ183T	1/4W 18K [M]
R659	ERDS2TJ222	1/4W 2.2K [M]
R663	ERDS2TJ393	1/4W 39K [M]
R665, 666	ERDS2TJ562	1/4W 5.6K [M]

Ref. No.	Part No.	Values & Remarks
R667	ERDS2TJ331	1/4W 330 [M]
R701, 702	ERDS2TJ273	1/4W 27K [M]
R703, 704	ERDS2TJ101	1/4W 100 [M]
R707⚠	ERD25FVJ4R7T	1/4W 4.7 [M]
R708	ERDS2TJ472	1/4W 4.7K [M]
R712	ERDS2TJ152	1/4W 1.5K [M]
R713, 714	ERDS2TJ332	1/4W 3.3K [M]
R715	ERDS2TJ183T	1/4W 18K [M]
R717	ERDS2TJ473	1/4W 47K [M]
R721⚠	ERD2FCVJ4R7T	1/4W 4.7 [M]
R722⚠	ERQ16NKW2R2E	1/6W 2.2 [M]
R723	ERDS2TJ562	1/4W 5.6K [M]
R724	ERDS2TJ392T	1/4W 3.9K [M]
R725, 726	ERDS2TJ100	1/4W 10 [M]
R727	ERDS2TJ392T	1/4W 3.9K [M]
R729	ERDS2TJ221	1/4W 220 [M]
R735⚠	ERD25FVJ4R7T	1/4W 4.7 [M]
R736	ERDS2TJ102	1/4W 1K [M]
R737	ERDS2TJ221	1/4W 220 [M]
R738	ERDS2TJ392T	1/4W 3.9K [M]
R739	ERDS2TJ473	1/4W 47K [M]
R748	ERDS2TJ102	1/4W 1K [M]
R749	ERDS2TJ271	1/4W 270 [M]
R755⚠	ERDS1FVJ8R2T	1/2W 8.2 [M]
R756⚠	ERDS1FJ4R7	1/2W 4.7 [M]
R757-759	ERDS2TJ103	1/4W 10K [M]
R761, 762	ERDS2TJ822	1/4W 8.2K [M]
R763	ERDS2TJ472	1/4W 4.7K [M]
R764	ERDS2TJ331	1/4W 330 [M]
R765⚠	ERDS1FVJ561T	1/2W 560 [M]
R766	ERDS2TJ102	1/4W 1K [M]
R767⚠	ERD25FVJ4R7T	1/4W 4.7 [M]
R768	ERDS2TJ101	1/4W 100 [M]
R791, 792⚠	RSFMB30KT-L	PROTECTOR [M]
R801, 802	ERDS2TJ393	1/4W 39K [M]
R808	ERDS2TJ104	1/4W 100K [M]
R819	ERDS2TJ393	1/4W 39K [M]
R822	ERDS2TJ102	1/4W 1K [M]
R823	ERDS2TJ105T	1/4W 1M [M]
R825-827	ERDS2TJ332	1/4W 3.3K [M]
R835, 836	ERDS2TJ222	1/4W 2.2K [M]
R837, 838	ERDS2TJ332	1/4W 3.3K [M]
R842	ERDS2TJ104	1/4W 100K [M]
R843, 844	ERDS2TJ222	1/4W 2.2K [M]
R845	ERDS2TJ104	1/4W 100K [M]
R846	ERDS2TJ122	1/4W 1.2K [M]
R847, 848	ERDS2TJ472	1/4W 4.7K [M]
R849	ERDS2TJ122	1/4W 1.2K [M]
R850	ERDS2TJ222	1/4W 2.2K [M]
R851	ERDS2TJ473	1/4W 47K [M]
R852	ERDS2TJ393	1/4W 39K [M]
R853	ERDS2TJ473	1/4W 47K [M]

Ref. No.	Part No.	Values & Remarks
R854	ERDS2TJ393	1/4W 39K [M]
R855	ERDS2TJ104	1/4W 100K [M]
R856, 857	ERDS2TJ123	1/4W 12K [M]
R859, 860	ERDS2EJ121	1/4W 120 [M]
R861	ERDS2TJ105T	1/4W 1M [M]
R862	ERDS2TJ472	1/4W 4.7K [M]
R863, 864	ERDS2TJ105T	1/4W 1M [M]
R865	ERDS2TJ102	1/4W 1K [M]
R866, 867	ERDS2TJ222	1/4W 2.2K [M]
R868-870	ERDS2TJ102	1/4W 1K [M]
R871, 872	ERDS2TJ4R7T	1/4W 4.7 [M]
R873⚠	ERD2FCVJ4R7T	1/4W 4.7 [M]
R874	ERDS2TJ104	1/4W 100K [M]
R875	ERDS2TJ102	1/4W 1K [M]
R882	ERDS2TJ103	1/4W 10K [M]
R891	ERDS2TJ331	1/4W 330 [M]
R901	ERDS2TJ821	1/4W 820 [M]
R902	ERDS2TJ102	1/4W 1K [M]
R903	ERDS2TJ122	1/4W 1.2K [M]
R904	ERDS2TJ152	1/4W 1.5K [M]
R905	ERDS2TJ182	1/4W 1.8K [M]
R906	ERDS2TJ222	1/4W 2.2K [M]
R907	ERDS2TJ272T	1/4W 2.7K [M]
R908	ERDS2TJ472	1/4W 4.7K [M]
R909	ERDS2TJ682T	1/4W 6.8K [M]
R910	ERDS2TJ123	1/4W 12K [M]
R911	ERDS2TJ223	1/4W 22K [M]
R912	ERDS2TJ821	1/4W 820 [M]
R919-923	ERDS2TJ103	1/4W 10K [M]
R924-927	ERDS2TJ102	1/4W 1K [M]
R929	ERDS2TJ102	1/4W 1K [M]
R930	ERDS2TJ101	1/4W 100 [M]
R931-936	ERDS2TJ102	1/4W 1K [M]
R937	ERDS2TJ562	1/4W 5.6K [M]
R938	ERDS2TJ102	1/4W 1K [M]
R939	ERDS2TJ152	1/4W 1.5K [M]
R940, 941	ERDS2TJ102	1/4W 1K [M]
R942	ERDS2TJ101	1/4W 100 [M]
R943	ERDS2TJ102	1/4W 1K [M]
R946	ERDS2TJ102	1/4W 1K [M]
R947, 948	ERDS2TJ104	1/4W 100K [M]
R949	ERDS2TJ472	1/4W 4.7K [M]
R950	ERDS2TJ101	1/4W 100 [M]
R951	ERDS2TJ334	1/4W 330K [M]
R952	ERDS2TJ106T	1/4W 10M [M]
R953	ERDS2TJ101	1/4W 100 [M]
R954	ERDS2TJ104	1/4W 100K [M]
R955	ERDS2TJ824	1/4W 820K [M]
R956-958	ERDS2TJ102	1/4W 1K [M]
R959	ERDS2TJ471	1/4W 470 [M]
R960	ERDS2TJ152	1/4W 1.5K [M]
R961, 962	ERDS2TJ223	1/4W 22K [M]

Ref. No.	Part No.	Values & Remarks
R963, 964	ERDS2TJ103	1/4W 10K [M]
R965	ERDS2TJ472	1/4W 4.7K [M]
R966	ERDS2TJ103	1/4W 10K [M]
R967	ERDS2TJ473	1/4W 47K [M]
R968	ERDS2TJ103	1/4W 10K [M]
R969, 970	ERDS2TJ472	1/4W 4.7K [M]
R971	ERDS2TJ473	1/4W 47K [M]
R972	ERDS2TJ223	1/4W 22K [M]
R974	ERDS2TJ101	1/4W 100 [M]
R975	ERDS2TJ181T	1/4W 180 [M]
R977-981	ERDS2TJ104	1/4W 100K [M]
R984, 985	ERDS2TJ473	1/4W 47K [M]
R986-988	ERDS2TJ102	1/4W 1K [M]
R989, 990	ERDS2TJ393	1/4W 39K [M]
R991	ERDS2TJ473	1/4W 47K [M]
R993, 994	ERDS2TJ104	1/4W 100K [M]
R996, 997	ERDS2TJ151	1/4W 150 [M]
		CAPACITORS
C101	ECBT1C103NS5	16V 0.01U [M]
C103	ECBT1C103NS5	16V 0.01U [M]
C104, 105	ECBT1H102KB5	50V 1000P [M]
C106	ECBT1C103NS5	16V 0.01U [M]
C107	ECBT1H473ZF5	50V 0.047U [M]
C108	ECBT1H8R2KC5	50V 8.2P [M]
C109, 110	ECBT1C103NS5	16V 0.01U [M]
C111	ECEA1EKA4R7B	25V 4.7U [M]
C112	ECBT1C103NS5	16V 0.01U [M]
C113	ECBT1H102KB5	50V 1000P [M]
C114	RCE1HKA3R3BG	50V 3.3U [M]
C115	ECEA1EKA4R7B	25V 4.7U [M]
C116	ECBT1C822KS5	16V 8200P [M]
C117	ECQP1391JZ	100V 390P [M]
C118, 119	ECFR1C103KR	16V 0.01U [M]
C120, 121	ECEA1HKA010B	50V 1U [M]
C122	ECEA1HKA2R2B	50V 2.2U [M]
C123	ECEA1HKA010B	50V 1U [M]
C124	ECBT1H102KB5	50V 1000P [M]
C125	ECBT1H150JC5	50V 15P [M]
C126	ECBT1H473ZF5	50V 0.047U [M]
C127	ECEA1CKA220B	16V 22U [M]
C128	ECBT1H102KB5	50V 1000P [M]
C129, 130	ECEA0JKA101B	6.3V 100U [M]
C132	ECBT1H102KB5	50V 1000P [M]
C133, 134	ECBT1H270JU5	50V 27P [M]
C135, 136	ECBT1C103KS5	16V 0.01U [M]
C137, 138	ECBT1H561KB5	50V 560P [M]
C139, 140	ECBT1C682KR5	16V 6800P [M]
C141-144	ECEA1HKA010B	50V 1U [M]
C145	ECBT1H220JC5	50V 22P [M]
C148	ECBT1C103NS5	16V 0.01U [M]

Ref. No.	Part No.	Values & Remarks
C149	ECBT1H104ZF5	50V 0.1U [M]
C171, 172	ECBT1H102KB5	50V 1000P [M]
C173	ECEA1CKA220B	16V 22U [M]
C174	RCE1CKA100BG	16V 10U [M]
C181	ECBT1H471KB5	50V 470P [M]
C196	ECBT1H102KB5	50V 1000P [M]
C201, 202	ECBT1H180J5	50V 18P [M]
C203, 204	ECBT1H151KB5	50V 150P [M]
C205, 206	ECBT1H102KB5	50V 1000P [M]
C207, 208	RCE1AKA330BG	10V 33U [M]
C209, 210	ECBT0J223MS5	6.3V 0.022U [M]
C211, 212	ECBT1C682KR5	16V 6800P [M]
C213, 214	RCE1CKA100BG	16V 10U [M]
C215	ECBT1E103ZF	25V 0.01U [M]
C217	ECBT1E103ZF	25V 0.01U [M]
C219-226	ECBT1H101KB5	50V 100P [M]
C229-234	ECBT1H101KB5	50V 100P [M]
C236	ECBT1H104ZF5	50V 0.1U [M]
C301	ECBT1H102KB5	50V 1000P [M]
C302, 303	ECBT1H561KB5	50V 560P [M]
C309	ECEA1HKAR22B	50V 0.22U [M]
C310	ECFR1C393KR	16V 0.039U [M]
C312	ECFR1C823MR	16V 0.082U [M]
C313	ECFR1C103KR	16V 0.01U [M]
C315	ECFR1C223KR	16V 0.022U [M]
C316	ECBT1C332KR5	16V 3300P [M]
C318	ECBT1C682KR5	16V 6800P [M]
C319	ECBT1H102KB5	50V 1000P [M]
C320	ECBA1H681KB5	50V 680P [M]
C321	ECBT1C332KR5	16V 3300P [M]
C322	ECQV1H333JM3	50V 0.033U [M]
C324	ECFR1C683KR	16V 0.068U [M]
C325	ECQV1H154JM3	50V 0.15U [M]
C326	ECBT1H102KB5	50V 1000P [M]
C327	ECBT1H471KB5	50V 470P [M]
C328	RCE1CKA470BG	16V 47U [M]
C329	ECEA1HKA2R2B	50V 2.2U [M]
C330	ECBA1H681KB5	50V 680P [M]
C331	ECBT1H104ZF5	50V 0.1U [M]
C332-334	ECBT1H470J5	50V 47P [M]
C336	ECBT1H104ZF5	50V 0.1U [M]
C337	RCE1CKA470BG	16V 47U [M]
C338	ECBT1H471KB5	50V 470P [M]
C339	ECBT1H102KB5	50V 1000P [M]
C340	ECQV1H154JM3	50V 0.15U [M]
C341	ECFR1C683KR	16V 0.068U [M]
C342	ECQV1H333JM3	50V 0.033U [M]
C343	ECEA1HKA2R2B	50V 2.2U [M]
C344	ECBT1C332KR5	16V 3300P [M]
C346	ECBT1H102KB5	50V 1000P [M]
C347	ECBT1C682KR5	16V 6800P [M]
C349	ECBT1C332KR5	16V 3300P [M]

Ref. No.	Part No.	Values & Remarks
C350	ECFR1C223KR	16V 0.022U [M]
C352	ECFR1C103KR	16V 0.01U [M]
C353	ECFR1C823MR	16V 0.082U [M]
C355	ECFR1C393KR	16V 0.039U [M]
C356	ECEA1HKAR22B	50V 0.22U [M]
C357, 358	ECQV1H683JM3	50V 0.068U [M]
C359	RCE1HKA3R3BG	50V 3.3U [M]
C360	RCE1HKA4R7BG	50V 4.7U [M]
C361, 362	ECBT1C222KR5	16V 2200P [M]
C364	ECBT1C152KR5	16V 1500P [M]
C365	ECQV1H154JM3	50V 0.15U [M]
C371	ECEA0JKA101B	6.3V 100U [M]
C372	ECBT1H104ZF5	50V 0.1U [M]
C375, 376	ECFR1C333KR	16V 0.033U [M]
C378, 379	ECFR1C473KR	16V 0.047U [M]
C381	ECBT1E103ZF	25V 0.01U [M]
C385, 386	ECEA1HKAR22B	50V 0.22U [M]
C395, 396	ECBT1H473ZF5	50V 0.047U [M]
C501-506	ECBT1H101KB5	50V 100P [M]
C507, 508	RCE1CKA100BG	16V 10U [M]
C509-512	ECBT1E103ZF	25V 0.01U [M]
C551	ECEA1HKA2R2B	50V 2.2U [M]
C552	ECBT1E103ZF	25V 0.01U [M]
C554	ECEA1AKA221B	10V 220U [M]
C555, 556	ECEA1CKN100B	16V 10U [M]
C557, 558	ECFR1C393KR	16V 0.039U [M]
C602-605	RCE1CKA100BG	16V 10U [M]
C607-610	ECBT1H471KB5	50V 470P [M]
C611-614	ECBT1H150JC5	50V 15P [M]
C615	ECEA2AU010	100 1U [M]
C616	ECA1JM330B	63V 33U [M]
C617	ECEA1HN2R2	50V 2.2U [M]
C618	ECA1HM101B	50V 100U [M]
C620, 621	ECQV1H473JM3	50V 0.047U [M]
C624, 625	ECQV1H473JM3	50V 0.047U [M]
C628, 629	ECEA1CU100	16V 10U [M]
C631, 632	ECBT1H102KB5	50V 1000P [M]
C633	ECBT1C103KS5	16V 0.01U [M]
C654	ECEA1EKN3R3B	25V 3.3U [M]
C655	ECEA2AU3R3B	100V 3.3U [M]
C656	ECBT1E103ZF	25V 0.01U [M]
C657	ECBT1H104ZF5	50V 0.1U [M]
C701-704⚠	ECA1VM472E	35V 4700U [M]
C705	RCE1CKA100BG	16V 10U [M]
C706	RCE1VKA100BG	35V 10U [M]
C707	ECBT1E103ZF	25V 0.01U [M]
C708	RCE1CKA100BG	16V 10U [M]
C709	ECBT1H104ZF5	50V 0.1U [M]
C710	ECBT1E103ZF	25V 0.01U [M]
C711	RCE1EM471BV	25V 470U [M]
C714	ECBT1H102KB5	50V 1000P [M]
C715⚠	ECA1EM472E	25V 4700U [M]

Ref. No.	Part No.	Values & Remarks
C717	ECEA1CKA330B	16V 33U [M]
C718	RCE1AKA101BG	10V 100U [M]
C719, 720	ECBT1E103ZF	25V 0.01U [M]
C721	RCE1AKA101BG	10V 100U [M]
C723	ECBT1E103ZF	25V 0.01U [M]
C725	RCE1CKA100BG	16V 10U [M]
C726	ECBT1E103ZF	25V 0.01U [M]
C731	ECBT1H102KB5	50V 1000P [M]
C732	ECBT1E223ZF	25V 0.022U [M]
C734	RCE1CKA100BG	16V 10U [M]
C736⚠	ECA1EM101B	25V 100U [M]
C737, 738⚠	ECA1HM101B	50V 100U [M]
C739⚠	ECA1JM101B	63V 100U [M]
C740	RCE1CKA100BG	16V 10U [M]
C741	ECBT1H104ZF5	50V 0.1U [M]
C801	ECQV1H154JM3	50V 0.15U [M]
C802	RCE1HKA3R3BG	50V 3.3U [M]
C803	ECQV1H154JM3	50V 0.15U [M]
C804	RCE1HKA4R7BG	50V 4.7U [M]
C805	RCE1HKAR47BG	50V 0.47U [M]
C806	RCE1HKA4R7BG	50V 4.7U [M]
C807	RCE1HKAR47BG	50V 0.47U [M]
C808	RCE1CKA100BG	16V 10U [M]
C809	ECEA1HKA010B	50V 1U [M]
C811, 812	ECEA1CKA330B	16V 33U [M]
C813	ECA1CM221B	16V 220U [M]
C814-817	RCE1CKA100BG	16V 10U [M]
C818	ECEA1HKA2R2B	50V 2.2U [M]
C820	ECEA1HKAR33B	50V 0.33U [M]
C821	ECA1CM221B	16V 220U [M]
C824	ECA1CM221B	16V 220U [M]
C825, 826	ECBT1H101KB5	50V 100P [M]
C827	ECBT1H330J5	50V 33P [M]
C828	ECFR1C823MR	16V 0.082U [M]
C829	ECFR1E332KR	25V 3300P [M]
C830	ECFR1C823MR	16V 0.082U [M]
C831	RCE1HKAR47BG	50V 0.47U [M]
C832	ECQV1H473JM3	50V 0.047U [M]
C833	ECA1CM221B	16V 220U [M]
C834	RCE1HKAR47BG	50V 0.47U [M]
C835	RCE1CKA470BG	16V 47U [M]
C836	ECEA1HKA010B	50V 1U [M]
C837	ECBT1H104ZF5	50V 0.1U [M]
C840, 841	RCE1CKA100BG	16V 10U [M]
C842	RCE1HKAR47BG	50V 0.47U [M]
C843	RCE1HKA4R7BG	50V 4.7U [M]
C844	RCE1HKAR47BG	50V 0.47U [M]
C845	RCE1HKA4R7BG	50V 4.7U [M]
C846	ECQV1H154JM3	50V 0.15U [M]
C847	RCE1HKA3R3BG	50V 3.3U [M]
C848	ECQV1H154JM3	50V 0.15U [M]
C851	RCE1CKA470BG	16V 47U [M]

Ref. No.	Part No.	Values & Remarks
C852	ECBA1H681KB5	50V 680P [M]
C861, 862	RCE1CKA100BG	16V 10U [M]
C863, 864	ECEA1CKA220B	16V 22U [M]
C865, 866	RCE1HKA3R3BG	50V 3.3U [M]
C867-869	ECEA1CKA330B	16V 33U [M]
C870	RCE1CKA100BG	16V 10U [M]
C871, 872	ECBT1H470J5	50V 47P [M]
C873, 874	ECEA0JKA470B	6.3V 47U [M]
C875, 876	RCE1CKA100BG	16V 10U [M]
C877	ECEA0JKA101B	6.3V 100U [M]
C878	ECBT1E103ZF	25V 0.01U [M]
C880	ECEA1CKA101B	16V 100U [M]
C882	ECEA1CKA101B	16V 100U [M]
C883	ECBT0J223MS5	6.3V 0.022U [M]
C887	ECBT1H102KB5	50V 1000P [M]
C888, 889	ECBT1H221KB5	50V 220P [M]
C901	ECBT1H104ZF5	50V 0.1U [M]
C902	ECA0JM102B	6.3V 1000U [M]
C903	ECBT1E103ZF	25V 0.01U [M]
C905-908	ECBT1H471KB5	50V 470P [M]
C909	ECBT1H102KB5	50V 1000P [M]
C910	ECBT1H150JC5	50V 15P [M]
C911	ECBT1H180JC5	50V 18P [M]
C912	ECBT1H104ZF5	50V 0.1U [M]
C913	RCE1CKA100BG	16V 10U [M]
C914	ECEA1HKA2R2B	50V 2.2U [M]
C915	ECBT1E103ZF	25V 0.01U [M]
C916	ECA0JKF101B	6.3V 100U [M]
C917	ECBT1E103ZF	25V 0.01U [M]
C918	ECEA0JKA221B	6.3V 220U [M]
C919, 920	ECEA1HKS2R2B	50V 2.2U [M]
C921	ECBT1H102KB5	50V 1000P [M]
C922	ECEA1VKA330B	35V 33U [M]
C1101, 1102	ECBT1H473ZF5	50V 0.047U [M]
C1103-1106	ECBT1H102KB5	50V 1000P [M]
C1107, 1108	ECBT1H473ZF5	50V 0.047U [M]
C1109-1111	ECBT1H102KB5	50V 1000P [M]

■ Replacement Parts List (Electrical) [For (EG) and (EP) areas]

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*[M] Indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101	LA1832MH-TEL	IC	[M]
IC102	LC7218M-TE-L	IC	[M]
IC151	LA2230M-TE-L	IC	[M]
IC201	AN6558SFE2	IC	[M]
IC301	M62433FP	IC	[M]
IC302	BA4558FDXT1	IC	[M]
IC501	M5218AP	IC	[M]
IC601⚠	RSN307M44	IC	[M]
IC801	LV1030	IC	[M]
IC803	M62425FPE1	IC	[M]
IC901	M38198MC097F	IC	[M]
		TRANSISTOR(S)	
Q101, 102	2SC2787L	TRANSISTOR	[M]
Q103, 104	2SC2785FE	TRANSISTOR	[M]
Q106	UN4111	TRANSISTOR	[M]
Q107, 108	2SC3311AR	TRANSISTOR	[M]
Q110	2SC3311AR	TRANSISTOR	[M]
Q305, 306	2SC3311AIRTA	TRANSISTOR	[M]
Q307, 308	2SD2144S	TRANSISTOR	[M]
Q309, 310	UN4115	TRANSISTOR	[M]
Q503	2SD1450RTA	TRANSISTOR	[M]
Q551	2SA1309AIRTA	TRANSISTOR	[M]
Q553	2SD2144S	TRANSISTOR	[M]
Q554	2SA1309AIRTA	TRANSISTOR	[M]
Q555	2SD2144S	TRANSISTOR	[M]
Q556	2SC3311AIRTA	TRANSISTOR	[M]
Q557	2SA1309AIRTA	TRANSISTOR	[M]
Q558	2SD2144S	TRANSISTOR	[M]
Q603-605	2SC3311AIRTA	TRANSISTOR	[M]
Q651⚠	2SB1238QRTV6	TRANSISTOR	[M]
Q652	2SD1859QRTV2	TRANSISTOR	[M]
Q653	UN4111	TRANSISTOR	[M]
Q654	2SD1859QRTV2	TRANSISTOR	[M]
Q655	UN4211	TRANSISTOR	[M]
Q656	2SC3311AIRTA	TRANSISTOR	[M]
Q657	UN4111	TRANSISTOR	[M]
Q701⚠	2SD2374PQAU	TRANSISTOR	[M]
Q702⚠	2SB1548PQAU	TRANSISTOR	[M]
Q703⚠	2SD2374PQAU	TRANSISTOR	[M]
Q704	UN4211	TRANSISTOR	[M]
Q707⚠	2SB621A-R	TRANSISTOR	[M]
Q708⚠	2SD2137PQTA	TRANSISTOR	[M]
Q709	2SD2144S	TRANSISTOR	[M]
Q711	2SB1417PQTA	TRANSISTOR	[M]
Q712⚠	2SB1548PQAU	TRANSISTOR	[M]
Q718	UN4111	TRANSISTOR	[M]
Q719, 720	2SD1450RTA	TRANSISTOR	[M]
Q721	2SC3311AIRTA	TRANSISTOR	[M]
Q722	2SA1309AIRTA	TRANSISTOR	[M]
Q723⚠	2SC3940AQSTA	TRANSISTOR	[M]
Q724	UN4211	TRANSISTOR	[M]
Q725⚠	2SC3311AIRTA	TRANSISTOR	[M]
Q801, 802	2SD1450RTA	TRANSISTOR	[M]
Q803, 804	UN4115	TRANSISTOR	[M]
Q805, 806	2SD1450RTA	TRANSISTOR	[M]
Q807	UN4115	TRANSISTOR	[M]
Q811, 812⚠	2SD2137PQTA	TRANSISTOR	[M]
Q881	2SD1450RTA	TRANSISTOR	[M]
Q901	UN4214TA	TRANSISTOR	[M]
Q902-904	2SC3311AIRTA	TRANSISTOR	[M]
Q905, 906	UN411FTA	TRANSISTOR	[M]
		DIODE(S)	
D101⚠	MA4051MTA	DIODE	[M]
D102	MA165	DIODE	[M]
D151	MA4051MTA	DIODE	[M]
D152	MA165	DIODE	[M]
D331	MA4051-L	DIODE	[M]
D551, 552	MA165	DIODE	[M]
D553	MA700TA	DIODE	[M]
D554	MA165	DIODE	[M]
D555	MA4100MTA	DIODE	[M]
D557, 558	MA165	DIODE	[M]
D559, 560	MA4020LTA	DIODE	[M]
D601, 602	SB360L6508	DIODE	[M]
D651⚠	MA4200M	DIODE	[M]
D652, 653⚠	MA4140M	DIODE	[M]
D654	MA4030MTA	DIODE	[M]
D657, 658	MA165	DIODE	[M]
D701-704⚠	1N5402BF	DIODE	[M]
D705-708⚠	RL1N4003N02	DIODE	[M]
D709	MA165	DIODE	[M]
D710	MA4051MTA	DIODE	[M]
D711	RL1N4003N02	DIODE	[M]
D713, 714⚠	MA185TA	DIODE	[M]
D715	MA165	DIODE	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
D717-720⚠	RL1N4003N02	DIODE	[M]
D721⚠	MA4300M	DIODE	[M]
D723⚠	MA4150M	DIODE	[M]
D724, 725⚠	MA4082LTA	DIODE	[M]
D727⚠	MA4062-H	DIODE	[M]
D730⚠	MA4100MTA	DIODE	[M]
D732-736	MA165	DIODE	[M]
D737⚠	MA4082LTA	DIODE	[M]
D738, 739	MA165	DIODE	[M]
D751, 752⚠	1N5402BF	DIODE	[M]
D753, 754⚠	RL1N4003N02	DIODE	[M]
D801-804	MA165	DIODE	[M]
D808⚠	MA4120	DIODE	[M]
D901, 902	1SS291TA	DIODE	[M]
D903, 904	MA165	DIODE	[M]
D905	1SS291TA	DIODE	[M]
D906, 907	MA165	DIODE	[M]
D908	SPR505MDTT	L. E. D.	[M]
D909	MA165	DIODE	[M]
D931	MA165	DIODE	[M]
D933	MA165	DIODE	[M]
D935-938	MA165	DIODE	[M]
D940	MA165	DIODE	[M]
D942	MA165	DIODE	[M]
D971, 972	MA165	DIODE	[M]
D973	MA4039MTA	DIODE	[M]
		VARIABLE RESISTOR(S)	
VR151	EVNDCBA03B53	V. R	[M]
VR901	EVQVBXFK124B	V. R	[M]
		COMPONENT COMBINATION(S)	
Z101	RLA2Z002M-T	COMPONENT COMBINATION	[M]
Z102	RLI2Z006M-T	COMPONENT COMBINATION	[M]
Z120	RAL0019	FM FRONT END	[M]
Z901	RCDGP1U28XD	REMOTE SENSOR	[M]
		COIL(S)	
L101	ELESNR68MA	COIL	[M]
L103	ELEXTR47MA9	COIL	[M]
L104	ELEXT1R0KA9	COIL	[M]
L105, 106	ELELN822KL	COIL	[M]
L151	SLM1B10M-1M	COIL	[M]
L161	ELEXT101KA9	COIL	[M]
L191	ELESNR68MA	COIL	[M]
L601-604	SLQY07G-40	COIL	[M]
L701⚠	RLQZ271M-K	COIL	[M]
L801	ELEXT100KA9	COIL	[M]
L901	RLQA100JT-Y	COIL	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
		TRANSFORMER(S)	
T501⚠	RTP2N5B006	POWER TRANSFORMER	[M]
		FILTER(S)	
CF201	RLFFETNGD01L	CERAMIC FILTER	[M]
CF202	RLFFETMGD01L	CERAMIC FILTER	[M]
		OSCILLATOR(S)	
X101	RSXZ456KM07M	OSCILLATOR	[M]
X102	RLFDGT05DD	OSCILLATOR	[M]
X103	RSXC7M20S05T	OSCILLATOR	[M]
X151	RSXZ456KM07M	OSCILLATOR	[M]
X801	EF0EC8004T4	OSCILLATOR	[M]
X901	EF0EC6004T4	OSCILLATOR	[M]
X902	RSXD32K7S02	OSCILLATOR	[M]
		DISPLAY TUBE	
FL901	RSL0234-F	DISPLAY TUBE	[M]
		FUSE(S)	
F1⚠	XBA2C20TB0	FUSE, 250V, T2A	[M]
		SWITCH(ES)	
S901-914	EVQ21405R	SW	[M]
		CONNECTOR(S)	
CN201	RJU057W010	CONNECTOR(10P)	[M]
CN203	RJU057W012	CONNECTOR(12P)	[M]
CN701-709	RJS1A1101T1	CONNECTOR(1P)	[M]
CN711-713	RJS1A1101T1	CONNECTOR(1P)	[M]
CN715	RJU057W012	CONNECTOR(12P)	[M]
CN721	RJS9T5ZA	CONNECTOR(9P)	[M]
CN722	RJS4T5ZA	CONNECTOR(4P)	[M]
CN801	RJU057W009	CONNECTOR(9P)	[M]
CN802	RJU057W008	CONNECTOR(8P)	[M]
CN904	RJS2A2105	CONNECTOR(5P)	[M]
CN101B	RJU057W007	CONNECTOR(7P)	[M]
CN102B	RJU057W007	CONNECTOR(7P)	[M]
CN501B	RJU057W007	CONNECTOR(7P)	[M]
CP201	RJT057W010-1	CONNECTOR(10P)	[M]
CP203	RJT057W012-1	CONNECTOR(12P)	[M]
CP715	RJT057W012-1	CONNECTOR(12P)	[M]
CP801	RJT057W009-1	CONNECTOR(9P)	[M]
CP802	RJT057W008-1	CONNECTOR(8P)	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
CP101B	RJT057W007-1	CONNECTOR(7P)	[M]
CP102B	RJT057W007-1	CONNECTOR(7P)	[M]
CP103B	RJT057W007-1	CONNECTOR(7P)	[M]
		EARTH TERMINAL(S)	
E601	SNE1004-2	EARTH TERMINAL	[M]
E603	SNE1004-2	EARTH TERMINAL	[M]
		FUSE HOLDER(S)	
FC1, 2	EYF52BC	FUSE HOLDER	[M]
		RELAY(S)	
RL701⚠	RSY0030-C	RELAY	[M]
		JACK(S)	
JK101	RJH5210M	ANTENNA	[M]
JK201	RJT065K19	SYSTEM	[M]
JK203	SJF3068-7N	EXT IN	[M]
JK204	SJF3069-5N	PHONO/EXT OUT	[M]
JK501	RJR0054M	SPEAKERS	[M]
JK502	RJH2305	SURROUND/CENTER SPEAKERS	[M]
JK551	SJT3213	FAN MOTOR	[M]
JK701⚠	SJS9236	AC INLET	[M]
JK903	RJJ37TN01-C	HEADPHONES	[M]

■ Resistors and Capacitors [For (EG) and (EP) areas]

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R103	ERDS2TJ101	1/4W 100 [M]
R104	ERDS2TJ103	1/4W 10K [M]
R105	ERDS2TJ471	1/4W 470 [M]
R106	ERDS2TJ474	1/4W 470K [M]
R107	ERDS2TJ331	1/4W 330 [M]
R108	ERDS2TJ474	1/4W 470K [M]
R109	ERDS2TJ331	1/4W 330 [M]
R110	ERDS2TJ102	1/4W 1K [M]
R112	ERDS2TJ104	1/4W 100K [M]
R113	ERDS2TJ103	1/4W 10K [M]
R114	ERDS2TJ562	1/4W 5.6K [M]
R115	ERDS2TJ561	1/4W 560 [M]
R116	ERDS2TJ102	1/4W 1K [M]
R117	ERDS2TJ823T	1/4W 82K [M]
R118	ERDS2TJ472	1/4W 4.7K [M]
R119	ERDS2TJ103	1/4W 10K [M]
R120	ERDS2TJ473	1/4W 47K [M]
R121	ERDS2TJ332	1/4W 3.3K [M]
R122	ERDS2TJ272T	1/4W 2.7K [M]
R124	ERDS2TJ271	1/4W 270 [M]
R125, 126	ERDS2TJ152	1/4W 1.5K [M]
R127	ERDS2TJ103	1/4W 10K [M]
R128	ERDS2TJ820	1/4W 82 [M]
R129	ERDS2TJ473	1/4W 47K [M]
R130	ERDS2TJ103	1/4W 10K [M]
R132	ERDS2TJ103	1/4W 10K [M]
R133-137	ERDS2TJ102	1/4W 1K [M]
R138	ERDS2TJ103	1/4W 10K [M]
R139, 140	ERDS2TJ272T	1/4W 2.7K [M]
R141, 142	ERDS2TJ102	1/4W 1K [M]
R143, 144	ERDS2TJ222	1/4W 2.2K [M]
R145, 146	ERDS2TJ821	1/4W 820 [M]
R147, 148	ERDS2TJ474	1/4W 470K [M]
R149	ERDS2TJ680T	1/4W 68 [M]
R151	ERDS2TJ564	1/4W 560K [M]
R152	ERDS2TJ102	1/4W 1K [M]
R153	ERDS2TJ155	1/4W 1.5M [M]
R154	ERDS2TJ102	1/4W 1K [M]
R155	ERDS2TJ562	1/4W 5.6K [M]
R156	ERDS2TJ471	1/4W 470 [M]
R157	ERDS2TJ820	1/4W 82 [M]
R158	ERDS2TJ103	1/4W 10K [M]
R159	ERDS2TJ104	1/4W 100K [M]
R160, 161	ERDS2TJ102	1/4W 1K [M]
R162	ERDS2TJ103	1/4W 10K [M]
R163	ERDS2TJ223	1/4W 22K [M]
R164	ERDS2TJ332	1/4W 3.3K [M]
R171, 172	ERDS2TJ102	1/4W 1K [M]
R173	ERDS2TJ471	1/4W 470 [M]
R175	ERDS2TJ102	1/4W 1K [M]
R176	ERDS2TJ391	1/4W 390 [M]
R177	ERDS2TJ472	1/4W 4.7K [M]
R201, 202	ERDS2TJ102	1/4W 1K [M]
R203, 204	ERDS2TJ473	1/4W 47K [M]
R205, 206	ERDS2TJ331	1/4W 330 [M]
R207, 208	ERDS2TJ271	1/4W 270 [M]
R209, 210	ERDS2TJ184T	1/4W 180K [M]
R211, 212	ERDS2TJ123	1/4W 12K [M]
R213, 214	ERDS2TJ680T	1/4W 68 [M]
R215, 216	ERDS2TJ272T	1/4W 2.7K [M]
R217, 218	ERDS2TJ392T	1/4W 3.9K [M]
R221, 222	ERDS2FJ752	1/4W 7.5K [M]
R223, 224	ERDS2TJ562	1/4W 5.6K [M]
R225, 226	ERDS2TJ104	1/4W 100K [M]
R227, 228	ERDS2TJ222	1/4W 2.2K [M]
R229, 230	ERDS2TJ822	1/4W 8.2K [M]
R231-234	ERDS2TJ682T	1/4W 6.8K [M]
R235, 236	ERDS2TJ102	1/4W 1K [M]
R239-242	ERDS2TJ102	1/4W 1K [M]
R243, 244	ERDS2TJ152	1/4W 1.5K [M]
R245, 246	ERDS2TJ332	1/4W 3.3K [M]
R249, 250	ERDS2TJ101	1/4W 100 [M]
R251	ERDS2TJ222	1/4W 2.2K [M]
R253, 254	ERDS2TJ104	1/4W 100K [M]
R255, 256	ERDS2TJ123	1/4W 12K [M]
R257, 258	ERDS2TJ562	1/4W 5.6K [M]
R301	ERDS2TJ223	1/4W 22K [M]
R302	ERDS2TJ472	1/4W 4.7K [M]
R303, 304	ERDS2TJ222	1/4W 2.2K [M]
R305, 306	ERDS2TJ122	1/4W 1.2K [M]
R307, 308	ERDS2TJ104	1/4W 100K [M]
R309, 310	ERDS2TJ102	1/4W 1K [M]
R311, 312	ERDS2TJ104	1/4W 100K [M]
R313, 314	ERDS2EJ121	1/4W 120 [M]
R315	ERDS2TJ104	1/4W 100K [M]
R316	ERDS2TJ222	1/4W 2.2K [M]
R317	ERDS2TJ105T	1/4W 1M [M]
R318	ERDS2TJ153	1/4W 15K [M]
R324	ERDS2TJ223	1/4W 22K [M]
R326	ERDS2TJ332	1/4W 3.3K [M]
R327	ERDS2TJ392T	1/4W 3.9K [M]
R328	ERDS2TJ332	1/4W 3.3K [M]
R329	ERDS2TJ103	1/4W 10K [M]
R330	ERDS2TJ332	1/4W 3.3K [M]
R331	ERDS2TJ102	1/4W 1K [M]
R332-334	ERDS2TJ222	1/4W 2.2K [M]
R335, 336	ERDS2TJ683	1/4W 68K [M]
R338	ERDS2TJ392T	1/4W 3.9K [M]
R343	ERDS2TJ334	1/4W 330K [M]
R360	ERDS2TJ223	1/4W 22K [M]
R364	ERDS2TJ103	1/4W 10K [M]
R365	ERDS2TJ223	1/4W 22K [M]
R371, 372	ERDS2TJ103	1/4W 10K [M]
R373-376	ERDS2TJ223	1/4W 22K [M]
R378, 379	ERDS2TJ182	1/4W 1.8K [M]
R380-382	ERDS2TJ153	1/4W 15K [M]
R385, 386	ERDS2TJ222	1/4W 2.2K [M]
R503, 504	ERDS2TJ333	1/4W 33K [M]
R505, 506	ERDS2TJ153	1/4W 15K [M]
R507, 508	ERDS2TJ332	1/4W 3.3K [M]
R509-512	ERDS2TJ560T	1/4W 56 [M]
R521	ERDS2TJ561	1/4W 560 [M]
R551	ERDS2TJ183T	1/4W 18K [M]
R552	ERDS2TJ473	1/4W 47K [M]
R555	ERDS2TJ223	1/4W 22K [M]
R556	ERDS2TJ104	1/4W 100K [M]
R557	ERDS2TJ472	1/4W 4.7K [M]
R558	ERDS2TJ102	1/4W 1K [M]
R559	ERDS2TJ472	1/4W 4.7K [M]
R560, 561	ERDS2TJ104	1/4W 100K [M]
R563	ERDS2TJ273	1/4W 27K [M]
R564	ERDS2TJ273	1/4W 27K [M]
R566	ERDS2TJ683	1/4W 68K [M]
R567	ERG1SJ220	1W 22 [M]
R568	ERDS2TJ101	1/4W 100 [M]
R569	ERDS2TJ103	1/4W 10K [M]
R570	ERDS2TJ225	1/4W 2.2M [M]
R591	ERDS2TJ473	1/4W 47K [M]
R602, 603	ERDS2TJ221	1/4W 220 [M]
R604, 605	ERDS2TJ103	1/4W 10K [M]
R609, 610	ERDS2TJ563	1/4W 56K [M]
R611, 612	ERDS2TJ332	1/4W 3.3K [M]
R613	ERDS2TJ104	1/4W 100K [M]
R614	ERDS2TJ124T	1/4W 120K [M]
R615, 616	ERDS2TJ182	1/4W 1.8K [M]
R619, 620	ERDS2TJ563	1/4W 56K [M]
R621	ERDS2TJ273	1/4W 27K [M]
R622	ERDS2TJ473	1/4W 47K [M]
R623	ERDS2TJ474	1/4W 470K [M]
R624	ERDS2TJ223	1/4W 22K [M]
R626	ERDS2TJ154	1/4W 150K [M]
R627	ERDS2TJ124T	1/4W 120K [M]
R628	ERDS2TJ184T	1/4W 180K [M]
R629	ERDS2TJ683	1/4W 68K [M]

Ref. No.	Part No.	Values & Remarks
R630	ERDS2TJ473	1/4W 47K [M]
R631	ERDS2TJ224T	1/4W 220K [M]
R632, 633	ERDS2TJ563	1/4W 56K [M]
R637	ERDS2TJ154	1/4W 150K [M]
R638	ERDS2TJ684	1/4W 680K [M]
R639-646⚠	ERDS1FJ100	1/2W 10 [M]
R647, 648	ERQ16NKWR15E	1/6W 0.15 [M]
R651	ERDS2TJ222	1/4W 2.2K [M]
R652	ERDS2TJ393	1/4W 39K [M]
R653	ERDS2TJ272T	1/4W 2.7K [M]
R654	ERDS2TJ222	1/4W 2.2K [M]
R655-658	ERDS2TJ183T	1/4W 18K [M]
R659	ERDS2TJ222	1/4W 2.2K [M]
R663	ERDS2TJ393	1/4W 39K [M]
R665, 666	ERDS2TJ562	1/4W 5.6K [M]
R667	ERDS2TJ331	1/4W 330 [M]
R701, 702	ERDS2TJ273	1/4W 27K [M]
R703, 704	ERDS2TJ101	1/4W 100 [M]
R707⚠	ERD25FVJ4R7T	1/4W 4.7 [M]
R708	ERDS2TJ472	1/4W 4.7K [M]
R712	ERDS2TJ152	1/4W 1.5K [M]
R713, 714	ERDS2TJ332	1/4W 3.3K [M]
R715	ERDS2TJ183T	1/4W 18K [M]
R717	ERDS2TJ473	1/4W 47K [M]
R721⚠	ERD2FCJ4R7	1/4W 4.7 [M]
R722⚠	ERQ16NKW2R2E	1/6W 2.2 [M]
R723	ERDS2TJ562	1/4W 5.6K [M]
R724	ERDS2TJ392T	1/4W 3.9K [M]
R725, 726	ERDS2TJ100	1/4W 10 [M]
R727	ERDS2TJ392T	1/4W 3.9K [M]
R729	ERDS2TJ221	1/4W 220 [M]
R735⚠	ERD25FVJ4R7T	1/4W 4.7 [M]
R736	ERDS2TJ102	1/4W 1K [M]
R737	ERDS2TJ221	1/4W 220 [M]
R738	ERDS2TJ392T	1/4W 3.9K [M]
R739	ERDS2TJ473	1/4W 47K [M]
R748	ERDS2TJ102	1/4W 1K [M]
R749	ERDS2TJ271	1/4W 270 [M]
R755⚠	ERDS1FVJ8R2T	1/2W 8.2 [M]
R756⚠	ERDS1FJ4R7	1/2W 4.7 [M]
R757-759	ERDS2TJ103	1/4W 10K [M]
R761, 762	ERDS2TJ822	1/4W 8.2K [M]
R763	ERDS2TJ472	1/4W 4.7K [M]
R764	ERDS2TJ331	1/4W 330 [M]
R765⚠	ERDS1FVJ561T	1/2W 560 [M]
R766	ERDS2TJ102	1/4W 1K [M]
R767⚠	ERD25FVJ4R7T	1/4W 4.7 [M]
R768	ERDS2TJ101	1/4W 100 [M]
R791, 792⚠	RSFMB30KT-L	PROTECTOR [M]
R801, 802	ERDS2TJ393	1/4W 39K [M]
R808	ERDS2TJ104	1/4W 100K [M]
R819	ERDS2TJ393	1/4W 39K [M]

Ref. No.	Part No.	Values & Remarks
R822	ERDS2TJ102	1/4W 1K [M]
R823	ERDS2TJ105T	1/4W 1M [M]
R825-827	ERDS2TJ332	1/4W 3.3K [M]
R835, 836	ERDS2TJ222	1/4W 2.2K [M]
R837, 838	ERDS2TJ332	1/4W 3.3K [M]
R842	ERDS2TJ104	1/4W 100K [M]
R843, 844	ERDS2TJ222	1/4W 2.2K [M]
R845	ERDS2TJ104	1/4W 100K [M]
R846	ERDS2TJ122	1/4W 1.2K [M]
R847, 848	ERDS2TJ472	1/4W 4.7K [M]
R849	ERDS2TJ122	1/4W 1.2K [M]
R850	ERDS2TJ222	1/4W 2.2K [M]
R851	ERDS2TJ473	1/4W 47K [M]
R852	ERDS2TJ393	1/4W 39K [M]
R853	ERDS2TJ473	1/4W 47K [M]
R854	ERDS2TJ393	1/4W 39K [M]
R855	ERDS2TJ104	1/4W 100K [M]
R856, 857	ERDS2TJ123	1/4W 12K [M]
R859, 860	ERDS2EJ121	1/4W 120 [M]
R861	ERDS2TJ105T	1/4W 1M [M]
R862	ERDS2TJ472	1/4W 4.7K [M]
R863, 864	ERDS2TJ105T	1/4W 1M [M]
R865	ERDS2TJ102	1/4W 1K [M]
R866, 867	ERDS2TJ222	1/4W 2.2K [M]
R868-870	ERDS2TJ102	1/4W 1K [M]
R871, 872	ERDS2TJ4R7T	1/4W 4.7 [M]
R873⚠	ERD2FCJ4R7	1/4W 4.7 [M]
R874	ERDS2TJ104	1/4W 100K [M]
R875	ERDS2TJ102	1/4W 1K [M]
R882	ERDS2TJ103	1/4W 10K [M]
R891	ERDS2TJ331	1/4W 330 [M]
R901	ERDS2TJ821	1/4W 820 [M]
R902	ERDS2TJ102	1/4W 1K [M]
R903	ERDS2TJ122	1/4W 1.2K [M]
R904	ERDS2TJ152	1/4W 1.5K [M]
R905	ERDS2TJ182	1/4W 1.8K [M]
R906	ERDS2TJ222	1/4W 2.2K [M]
R907	ERDS2TJ272T	1/4W 2.7K [M]
R908	ERDS2TJ472	1/4W 4.7K [M]
R909	ERDS2TJ682T	1/4W 6.8K [M]
R910	ERDS2TJ123	1/4W 12K [M]
R911	ERDS2TJ223	1/4W 22K [M]
R912	ERDS2TJ821	1/4W 820 [M]
R919-923	ERDS2TJ103	1/4W 10K [M]
R924-927	ERDS2TJ102	1/4W 1K [M]
R929	ERDS2TJ102	1/4W 1K [M]
R930	ERDS2TJ101	1/4W 100 [M]
R931-936	ERDS2TJ102	1/4W 1K [M]
R937	ERDS2TJ562	1/4W 5.6K [M]
R938	ERDS2TJ102	1/4W 1K [M]
R939	ERDS2TJ152	1/4W 1.5K [M]
R940, 941	ERDS2TJ102	1/4W 1K [M]

Ref. No.	Part No.	Values & Remarks
R942	ERDS2TJ101	1/4W 100 [M]
R943	ERDS2TJ102	1/4W 1K [M]
R946	ERDS2TJ102	1/4W 1K [M]
R949	ERDS2TJ472	1/4W 4.7K [M]
R950	ERDS2TJ101	1/4W 100 [M]
R951	ERDS2TJ334	1/4W 330K [M]
R952	ERDS2TJ106T	1/4W 10M [M]
R953	ERDS2TJ101	1/4W 100 [M]
R954	ERDS2TJ104	1/4W 100K [M]
R955	ERDS2TJ824	1/4W 820K [M]
R956-958	ERDS2TJ102	1/4W 1K [M]
R959	ERDS2TJ471	1/4W 470 [M]
R960	ERDS2TJ152	1/4W 1.5K [M]
R961, 962	ERDS2TJ223	1/4W 22K [M]
R963, 964	ERDS2TJ103	1/4W 10K [M]
R965	ERDS2TJ472	1/4W 4.7K [M]
R966	ERDS2TJ103	1/4W 10K [M]
R967	ERDS2TJ473	1/4W 47K [M]
R968	ERDS2TJ103	1/4W 10K [M]
R969, 970	ERDS2TJ472	1/4W 4.7K [M]
R971	ERDS2TJ473	1/4W 47K [M]
R972	ERDS2TJ223	1/4W 22K [M]
R974	ERDS2TJ101	1/4W 100 [M]
R975	ERDS2TJ181T	1/4W 180 [M]
R977-981	ERDS2TJ104	1/4W 100K [M]
R984, 985	ERDS2TJ473	1/4W 47K [M]
R986-988	ERDS2TJ102	1/4W 1K [M]
R989, 990	ERDS2TJ393	1/4W 39K [M]
R991	ERDS2TJ473	1/4W 47K [M]
R993, 994	ERDS2TJ104	1/4W 100K [M]
R996, 997	ERDS2TJ151	1/4W 150 [M]
		CAPACITORS
C101	ECBT1C103NS5	16V 0.01U [M]
C103	ECBT1C103NS5	16V 0.01U [M]
C104, 105	ECBT1H102KB5	50V 1000P [M]
C106	ECBT1C103NS5	16V 0.01U [M]
C107	ECBT1H473ZF5	50V 0.047U [M]
C108	ECBT1H8R2KC5	50V 8.2P [M]
C109, 110	ECBT1C103NS5	16V 0.01U [M]
C111	ECEA1EKA4R7B	25V 4.7U [M]
C112	ECBT1C103NS5	16V 0.01U [M]
C113	ECBT1H102KB5	50V 1000P [M]
C114	RCE1HKA3R3BG	50V 3.3U [M]
C115	ECEA1EKA4R7B	25V 4.7U [M]
C116	ECBT1C822KS5	16V 8200P [M]
C117	ECQP1391JZ	100V 390P [M]
C118, 119	ECFR1C103KR	16V 0.01U [M]
C120, 121	ECEA1HKA010B	50V 1U [M]
C122	ECEA1HKA2R2B	50V 2.2U [M]
C123	ECEA1HKA010B	50V 1U [M]

Ref. No.	Part No.	Values & Remarks
C124	ECBT1H102KB5	50V 1000P [M]
C125	ECBT1H150JC5	50V 15P [M]
C126	ECBT1H473ZF5	50V 0.047U [M]
C127	ECEA1CKA220B	16V 22U [M]
C128	ECBT1H102KB5	50V 1000P [M]
C129, 130	ECEA0JKA101B	6.3V 100U [M]
C132	ECBT1H102KB5	50V 1000P [M]
C133, 134	ECBT1H270JU5	50V 27P [M]
C135, 136	ECBT1C103KS5	16V 0.01U [M]
C137, 138	ECBT1H561KB5	50V 560P [M]
C139, 140	ECBT1C682KR5	16V 6800P [M]
C141-144	ECEA1HKA010B	50V 1U [M]
C145	ECBT1H220JC5	50V 22P [M]
C148	ECBT1C103NS5	16V 0.01U [M]
C149	ECBT1H104ZF5	50V 0.1U [M]
C151	ECEA0JKA101B	6.3V 100U [M]
C152	ECEA1CKA220B	16V 22U [M]
C153, 154	ECBT1C332KR5	16V 3300P [M]
C155	ECBT1C103KS5	16V 0.01U [M]
C156	ECBT1H102KB5	50V 1000P [M]
C157	RCE1CKA100BG	16V 10U [M]
C158	ECEA1EKA4R7B	25V 4.7U [M]
C159	RCE1CKA100BG	16V 10U [M]
C160	ECFR1C223KR	16V 0.022U [M]
C161	ECFR1C333KR	16V 0.033U [M]
C162	ECBT1C682KR5	16V 6800P [M]
C163	ECFR1C333KR	16V 0.033U [M]
C164	ECBT1H102KB5	50V 1000P [M]
C165	ECEA1EKA4R7B	25V 4.7U [M]
C171, 172	ECBT1H102KB5	50V 1000P [M]
C173	ECEA1CKA220B	16V 22U [M]
C174	RCE1CKA100BG	16V 10U [M]
C181	ECBT1H471KB5	50V 470P [M]
C196	ECBT1H102KB5	50V 1000P [M]
C201, 202	ECBT1H180J5	50V 18P [M]
C203, 204	ECBT1H151KB5	50V 150P [M]
C205, 206	ECBT1H102KB5	50V 1000P [M]
C207, 208	RCE1AKA330BG	10V 33U [M]
C209, 210	ECBT0J223MS5	6.3V 0.022U [M]
C211, 212	ECBT1C682KR5	16V 6800P [M]
C213, 214	RCE1CKA100BG	16V 10U [M]
C215	ECBT1E103ZF	25V 0.01U [M]
C217	ECBT1E103ZF	25V 0.01U [M]
C219-226	ECBT1H101KB5	50V 100P [M]
C229-234	ECBT1H101KB5	50V 100P [M]
C235, 236	ECBT1H104ZF5	50V 0.1U [M]
C301	ECBT1H102KB5	50V 1000P [M]
C302, 303	ECBT1H561KB5	50V 560P [M]
C309	ECEA1HKAR22B	50V 0.22U [M]
C310	ECFR1C393KR	16V 0.039U [M]
C312	ECFR1C823MR	16V 0.082U [M]
C313	ECFR1C103KR	16V 0.01U [M]
C315	ECFR1C223KR	16V 0.022U [M]
C316	ECBT1C332KR5	16V 3300P [M]
C318	ECBT1C682KR5	16V 6800P [M]
C319	ECBT1H102KB5	50V 1000P [M]
C320	ECBA1H681KB5	50V 680P [M]
C321	ECBT1C332KR5	16V 3300P [M]
C322	ECQV1H333JM3	50V 0.033U [M]
C324	ECFR1C683KR	16V 0.068U [M]
C325	ECQV1H154JM3	50V 0.15U [M]
C326	ECBT1H102KB5	50V 1000P [M]
C327	ECBT1H471KB5	50V 470P [M]
C328	RCE1CKA470BG	16V 47U [M]
C329	ECEA1HKA2R2B	50V 2.2U [M]
C330	ECBA1H681KB5	50V 680P [M]
C331	ECBT1H104ZF5	50V 0.1U [M]
C332-334	ECBT1H470J5	50V 47P [M]
C336	ECBT1H104ZF5	50V 0.1U [M]
C337	RCE1CKA470BG	16V 47U [M]
C338	ECBT1H471KB5	50V 470P [M]
C339	ECBT1H102KB5	50V 1000P [M]
C340	ECQV1H154JM3	50V 0.15U [M]
C341	ECFR1C683KR	16V 0.068U [M]
C342	ECQV1H333JM3	50V 0.033U [M]
C343	ECEA1HKA2R2B	50V 2.2U [M]
C344	ECBT1C332KR5	16V 3300P [M]
C346	ECBT1H102KB5	50V 1000P [M]
C347	ECBT1C682KR5	16V 6800P [M]
C349	ECBT1C332KR5	16V 3300P [M]
C350	ECFR1C223KR	16V 0.022U [M]
C352	ECFR1C103KR	16V 0.01U [M]
C353	ECFR1C823MR	16V 0.082U [M]
C355	ECFR1C393KR	16V 0.039U [M]
C356	ECEA1HKAR22B	50V 0.22U [M]
C357, 358	ECQV1H683JM3	50V 0.068U [M]
C359	RCE1HKA3R3BG	50V 3.3U [M]
C360	RCE1HKA4R7BG	50V 4.7U [M]
C361, 362	ECBT1C222KR5	16V 2200P [M]
C364	ECBT1C152KR5	16V 1500P [M]
C365	ECQV1H154JM3	50V 0.15U [M]
C371	ECEA0JKA101B	6.3V 100U [M]
C372	ECBT1H104ZF5	50V 0.1U [M]
C375, 376	ECFR1C333KR	16V 0.033U [M]
C378, 379	ECFR1C473KR	16V 0.047U [M]
C381	ECBT1E103ZF	25V 0.01U [M]
C385, 386	ECEA1HKAR22B	50V 0.22U [M]
C395, 396	ECBT1H473ZF5	50V 0.047U [M]
C501-506	ECBT1H101KB5	50V 100P [M]
C507, 508	RCE1CKA100BG	16V 10U [M]
C509-512	ECBT1E103ZF	25V 0.01U [M]
C551	ECEA1HKA2R2B	50V 2.2U [M]
C552	ECBT1E103ZF	25V 0.01U [M]
C554	ECA1AM221B	10V 220U [M]
C555, 556	ECEA1CKN100B	16V 10U [M]
C557, 558	ECFR1C393KR	16V 0.039U [M]
C602-605	RCE1CKA100BG	16V 10U [M]
C607-610	ECBT1H471KB5	50V 470P [M]
C611-614	ECBT1H150JC5	50V 15P [M]
C615	ECEA2AU010	100V 1U [M]
C616	ECA1JM330B	63V 33U [M]
C617	ECEA1HN2R2	50V 2.2U [M]
C618	ECA1HM101B	50V 100U [M]
C620, 621	ECQV1H473JM3	50V 0.047U [M]
C624, 625	ECQV1H473JM3	50V 0.047U [M]
C628, 629	RCE1CKA100BG	16V 10U [M]
C631, 632	ECBT1H102KB5	50V 1000P [M]
C633	ECBT1C103KS5	16V 0.01U [M]
C654	ECEA1EKN3R3B	25V 3.3U [M]
C655	ECEA2AU3R3B	100V 3.3U [M]
C656	ECBT1E103ZF	25V 0.01U [M]
C657	ECBT1H104ZF5	50V 0.1U [M]
C701-704⚠	ECA1VM472E	35V 4700U [M]
C705	RCE1CKA100BG	16V 10U [M]
C706	RCE1VKA100BG	35V 10U [M]
C707	ECBT1E103ZF	25V 0.01U [M]
C708	RCE1CKA100BG	16V 10U [M]
C709	ECBT1H104ZF5	50V 0.1U [M]
C710	ECBT1E103ZF	25V 0.01U [M]
C711	RCE1EM471BV	25V 470U [M]
C714	ECBT1H102KB5	50V 1000P [M]
C715⚠	ECA1EM472E	25V 4700U [M]
C717	ECEA1CKA330B	16V 33U [M]
C718	RCE1AKA101BG	10V 100U [M]
C719, 720	ECBT1E103ZF	25V 0.01U [M]
C721	RCE1AKA101BG	10V 100U [M]
C723	ECBT1E103ZF	25V 0.01U [M]
C725	RCE1CKA100BG	16V 10U [M]
C726	ECBT1E103ZF	25V 0.01U [M]
C731	ECBT1H102KB5	50V 1000P [M]
C732	ECBT1E223ZF	25V 0.022U [M]
C734	RCE1CKA100BG	16V 10U [M]
C736⚠	ECA1EM101B	25V 100U [M]
C737, 738⚠	ECA1HM101B	50V 100U [M]
C739⚠	ECA1JM101B	63V 100U [M]
C740	RCE1CKA100BG	16V 10U [M]
C741	ECBT1H104ZF5	50V 0.1U [M]
C801	ECQV1H154JM3	50V 0.15U [M]
C802	RCE1HKA3R3BG	50V 3.3U [M]
C803	ECQV1H154JM3	50V 0.15U [M]
C804	RCE1HKA4R7BG	50V 4.7U [M]
C805	RCE1HKAR47BG	50V 0.47U [M]
C806	RCE1HKA4R7BG	50V 4.7U [M]
C807	RCE1HKAR47BG	50V 0.47U [M]
C808	RCE1CKA100BG	16V 10U [M]
C809	ECEA1HKA010B	50V 1U [M]

Ref. No.	Part No.	Values & Remarks
C811, 812	ECEA1CKA330B	16V 33U [M]
C813	ECA1CM221B	16V 220U [M]
C814-817	RCE1CKA100BG	16V 10U [M]
C818	ECEA1HKA2R2B	50V 2.2U [M]
C820	ECEA1HKAR33B	50V 0.33U [M]
C821	ECA1CM221B	16V 220U [M]
C824	ECA1CM221B	16V 220U [M]
C825, 826	ECBT1H101KB5	50V 100P [M]
C827	ECBT1H330J5	50V 33P [M]
C828	ECFR1C823MR	16V 0.082U [M]
C829	ECFR1E332KR	25V 3300P [M]
C830	ECFR1C823MR	16V 0.082U [M]
C831	RCE1HKAR47BG	50V 0.47U [M]
C832	ECQV1H473JM3	50V 0.047U [M]
C833	ECA1CM221B	16V 220U [M]
C834	RCE1HKAR47BG	50V 0.47U [M]
C835	RCE1CKA470BG	16V 0.47U [M]
C836	ECEA1HKA010B	50V 1U [M]
C837	ECBT1H104ZF5	50V 0.1U [M]
C840, 841	RCE1CKA100BG	16V 10U [M]
C842	RCE1HKAR47BG	50V 0.47U [M]
C843	RCE1HKA4R7BG	50V 4.7U [M]
C844	RCE1HKAR47BG	50V 0.47U [M]
C845	RCE1HKA4R7BG	50V 4.7U [M]
C846	ECQV1H154JM3	50V 0.15U [M]
C847	RCE1HKA3R3BG	50V 3.3U [M]
C848	ECQV1H154JM3	50V 0.15U [M]
C851	RCE1CKA470BG	16V 47U [M]
C852	ECBA1H681KB5	50V 680P [M]
C861, 862	RCE1CKA100BG	16V 10U [M]
C863, 864	ECEA1CKA220B	16V 22U [M]
C865, 866	RCE1HKA3R3BG	50V 3.3U [M]
C867-869	ECEA1CKA330B	16V 33U [M]
C870	RCE1CKA100BG	16V 10U [M]
C871, 872	ECBT1H470J5	50V 47P [M]
C873, 874	ECEA0JKA470B	6.3V 47U [M]
C875, 876	RCE1CKA100BG	16V 10U [M]
C877	ECEA0JKA101B	6.3V 100U [M]
C878	ECBT1E103ZF	25V 0.01U [M]
C880	ECEA1CKA101B	16V 100U [M]
C882	ECEA1CKA101B	16V 100U [M]
C883	ECBT0J223MS5	6.3V 0.022U [M]
C887	ECBT1H102KB5	50V 1000P [M]
C888, 889	ECBT1H221KB5	50V 220P [M]
C901	ECBT1H104ZF5	50V 0.1U [M]
C902	ECA0JM102B	6.3V 1000U [M]
C903	ECBT1E103ZF	25V 0.01U [M]
C905-908	ECBT1H471KB5	50V 470P [M]
C909	ECBT1H102KB5	50V 1000P [M]
C910	ECBT1H150JC5	50V 15P [M]
C911	ECBT1H180JC5	50V 18P [M]
C912	ECBT1H104ZF5	50V 0.1U [M]

Ref. No.	Part No.	Values & Remarks
C913	RCE1CKA100BG	16V 10U [M]
C914	ECEA1HKA2R2B	50V 2.2U [M]
C915	ECBT1E103ZF	25V 0.01U [M]
C916	ECA0JKF101B	6.3V 100U [M]
C917	ECBT1E103ZF	25V 0.01U [M]
C918	ECEA0JKA221B	6.3V 220U [M]
C919, 920	ECEA1HKS2R2B	50V 2.2U [M]
C921	ECBT1H102KB5	50V 1000P [M]
C922	ECEA1VKA330B	35V 33U [M]
C1101, 1102	ECBT1H473ZF5	50V 0.047U [M]
C1103-1106	ECBT1H102KB5	50V 1000P [M]
C1107, 1108	ECBT1H473ZF5	50V 0.047U [M]
C1109-1111	ECBT1H102KB5	50V 1000P [M]

■ Replacement Parts List (Electrical) [For (GC) and (GN) areas]

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*[M] Indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101	LA1832MH-TEL	IC	[M]
IC102	LC7218M-TE-L	IC	[M]
IC201	AN6558SFE2	IC	[M]
IC301	M62433FP	IC	[M]
IC302	BA4558FDXT1	IC	[M]
IC401	TA2011S	IC	[M]
IC402	BU9255FS-E2	IC	[M]
IC501	M5218AP	IC	[M]
IC601⚠	RSN307M44	IC	[M]
IC801	LV1030	IC	[M]
IC803	M62425FPE1	IC	[M]
IC901	M38198MC099F	IC	[M]
		TRANSISTOR(S)	
Q101, 102	2SC2787L	TRANSISTOR	[M]
Q103, 104	2SC2785FE	TRANSISTOR	[M]
Q106	UN411FTA	TRANSISTOR	[M]
Q107, 108	2SC3311AR	TRANSISTOR	[M]
Q301	2SD2144S	TRANSISTOR	[M]
Q305, 306	2SC3311AIRTA	TRANSISTOR	[M]
Q307, 308	2SD2144S	TRANSISTOR	[M]
Q309, 310	UN4115	TRANSISTOR	[M]
Q401	2SC3311AIRTA	TRANSISTOR	[M]
Q503	2SD1450RTA	TRANSISTOR	[M]
Q551	2SA1309AIRTA	TRANSISTOR	[M]
Q553	2SD2144S	TRANSISTOR	[M]
Q554	2SA1309AIRTA	TRANSISTOR	[M]
Q555	2SD2144S	TRANSISTOR	[M]
Q556	2SC3311AIRTA	TRANSISTOR	[M]
Q557	2SA1309AIRTA	TRANSISTOR	[M]
Q558	2SD2144S	TRANSISTOR	[M]
Q603-605	2SC3311AIRTA	TRANSISTOR	[M]
Q651⚠	2SB1238QRTV6	TRANSISTOR	[M]
Q652	2SD1859QRTV2	TRANSISTOR	[M]
Q653	UN4111	TRANSISTOR	[M]
Q654	2SD1859QRTV2	TRANSISTOR	[M]
Q655	UN4211	TRANSISTOR	[M]
Q656	2SC3311AIRTA	TRANSISTOR	[M]
Q657	UN4111	TRANSISTOR	[M]
Q701⚠	2SD2374PQAU	TRANSISTOR	[M]
Q702⚠	2SB1548PQAU	TRANSISTOR	[M]
Q703⚠	2SD2374PQAU	TRANSISTOR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
Q704	UN4211	TRANSISTOR	[M]
Q707⚠	2SB621A-R	TRANSISTOR	[M]
Q708⚠	2SD2137PQTA	TRANSISTOR	[M]
Q709	2SD2144S	TRANSISTOR	[M]
Q711	2SB1417PQTA	TRANSISTOR	[M]
Q712⚠	2SB1548PQAU	TRANSISTOR	[M]
Q718	UN4111	TRANSISTOR	[M]
Q719, 720	2SD1450RTA	TRANSISTOR	[M]
Q721	2SC3311AIRTA	TRANSISTOR	[M]
Q722	2SA1309AIRTA	TRANSISTOR	[M]
Q723⚠	2SC3940AQSTA	TRANSISTOR	[M]
Q724	UN4211	TRANSISTOR	[M]
Q725⚠	2SC3311AIRTA	TRANSISTOR	[M]
Q801, 802	2SD1450RTA	TRANSISTOR	[M]
Q803, 804	UN4115	TRANSISTOR	[M]
Q805, 806	2SD1450RTA	TRANSISTOR	[M]
Q807	UN4115	TRANSISTOR	[M]
Q811, 812⚠	2SD2137PQTA	TRANSISTOR	[M]
Q881	2SD1450RTA	TRANSISTOR	[M]
Q901	UN4214TA	TRANSISTOR	[M]
Q902-904	2SC3311AIRTA	TRANSISTOR	[M]
Q905, 906	UN411FTA	TRANSISTOR	[M]
		DIODE(S)	
D101⚠	MA4051MTA	DIODE	[M]
D102	MA165	DIODE	[M]
D303	MA165	DIODE	[M]
D331	MA4051-L	DIODE	[M]
D401	MA165	DIODE	[M]
D402	MA4051MTA	DIODE	[M]
D551, 552	MA165	DIODE	[M]
D553	MA700TA	DIODE	[M]
D554	MA165	DIODE	[M]
D555	MA4100MTA	DIODE	[M]
D557, 558	MA165	DIODE	[M]
D559, 560	MA4020LTA	DIODE	[M]
D601, 602	SB360L6508	DIODE	[M]
D651⚠	MA4200M	DIODE	[M]
D652, 653⚠	MA4140M	DIODE	[M]
D654	MA4030MTA	DIODE	[M]
D657, 658	MA165	DIODE	[M]
D701-704⚠	1N5402BF	DIODE	[M]
D705-708⚠	RL1N4003N02	DIODE	[M]
D709	MA165	DIODE	[M]
D710	MA4051MTA	DIODE	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
D711	RL1N4003N02	DIODE	[M]
D713, 714⚠	MA185TA	DIODE	[M]
D715	MA165	DIODE	[M]
D717-720⚠	RL1N4003N02	DIODE	[M]
D721⚠	MA4300M	DIODE	[M]
D723⚠	MA4150M	DIODE	[M]
D724, 725⚠	MA4082LTA	DIODE	[M]
D727⚠	MA4062-H	DIODE	[M]
D730⚠	MA4100MTA	DIODE	[M]
D732-736	MA165	DIODE	[M]
D737⚠	MA4082LTA	DIODE	[M]
D738, 739	MA165	DIODE	[M]
D751, 752⚠	1N5402BF	DIODE	[M]
D753, 754⚠	RL1N4003N02	DIODE	[M]
D801-804	MA165	DIODE	[M]
D808⚠	MA4120	DIODE	[M]
D901, 902	1SS291TA	DIODE	[M]
D903, 904	MA165	DIODE	[M]
D905	1SS291TA	DIODE	[M]
D906, 907	MA165	DIODE	[M]
D908	SPR505MDTT	DIODE	[M]
D909	MA165	DIODE	[M]
D931	MA165	DIODE	[M]
D935-938	MA165	DIODE	[M]
D940	MA165	DIODE	[M]
D942	MA165	DIODE	[M]
D971, 972	MA165	DIODE	[M]
D973	MA4039MTA	DIODE	[M]
		VARIABLE RESISTOR(S)	
VR401	EVUE27FK3B53	V. R	[M]
VR901	EVQVBXFK124B	V. R	[M]
		COMPONENT COMBINATION(S)	
Z101	RLA2Z002M-T	COMPONENT COMBINATION	[M]
Z102	RLI2Z006M-T	COMPONENT COMBINATION	[M]
Z120	RAL0006	FM FRONT END	[M]
Z901	RCDGP1U28XD	REMOTE SENSOR	[M]
		COIL(S)	
L101	ELESNR68MA	COIL	[M]
L103	ELEXTR47MA9	COIL	[M]
L105, 106	ELELN822KL	COIL	[M]
L191	ELESNR68MA	COIL	[M]
L601-604	SLQY07G-40	COIL	[M]
L701⚠	RLQZ271M-K	COIL	[M] (GN)
L801	ELEXT100KA9	COIL	[M]
L901	RLQA100JT-Y	COIL	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
		TRANSFORMER(S)	
T501⚠	RTP2N5E010	POWER TRANSFORMER	[M] (GC)
T501⚠	RTP2N5B006	POWER TRANSFORMER	[M] (GN)
		FILTER(S)	
CF201, 202	RLFFETWND01M	CERAMIC FILTER	[M]
		OSCILLATOR(S)	
X101	RSXZ456KM07M	OSCILLATOR	[M]
X102	RLFDGT05DD	OSCILLATOR	[M]
X103	RSXC7M20S05T	OSCILLATOR	[M]
X801	EF0EC8004T4	OSCILLATOR	[M]
X901	EF0EC6004T4	OSCILLATOR	[M]
X902	RSXD32K7S02	OSCILLATOR	[M]
		DISPLAY TUBE	
FL901	RSL0234-F	DISPLAY TUBE	[M]
		FUSE(S)	
F1⚠	XBA2C40TB0	FUSE	[M] (GC)
F1⚠	XBA2C25TB0	FUSE	[M] (GN)
F2⚠	XBA2C20TB0	FUSE, 250V, T2A	[M] (GC)
		SWITCH(ES)	
S701⚠	ESE37314	SW	[M] (GC)
S901-914	EVQ21405R	SW	[M]
		CONNECTOR(S)	
CN201	RJU057W010	CONNECTOR(10P)	[M]
CN203	RJU057W012	CONNECTOR(12P)	[M]
CN701-709	RJS1A1101T1	CONNECTOR(1P)	[M]
CN711-713	RJS1A1101T1	CONNECTOR(1P)	[M]
CN714, 715	RJS1A1101T1	CONNECTOR(1P)	[M] (GC)
CN715	RJU057W012	CONNECTOR(12P)	[M]
CN716-719	RJS1A1101T1	CONNECTOR(1P)	[M] (GC)
CN720A	RJP1A4103	CONNECTOR(3P)	[M] (GC)
CN720	RJS1A1101T1	CONNECTOR(1P)	[M] (GC)
CN721	RJS9T5ZA	CONNECTOR(9P)	[M]
CN722	RJS4T5ZA	CONNECTOR(4P)	[M]
CN801	RJU057W009	CONNECTOR(9P)	[M]
CN802	RJU057W008	CONNECTOR(8P)	[M]
CN904, 905	RJS2A2105	CONNECTOR(5P)	[M]
CN101B	RJU057W007	CONNECTOR(7P)	[M]
CN102B	RJU057W007	CONNECTOR(7P)	[M]
CP201	RJT057W010-1	CONNECTOR(10P)	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
CP203	RJT057W012-1	CONNECTOR (12P)	[M]
CP715	RJT057W012-1	CONNECTOR (12P)	[M]
CP801	RJT057W009-1	CONNECTOR (9P)	[M]
CP802	RJT057W008-1	CONNECTOR (8P)	[M]
CP101B	RJT057W007-1	CONNECTOR (7P)	[M]
CP102B	RJT057W007-1	CONNECTOR (7P)	[M]
		EARTH TERMINAL (S)	
E601	SNE1004-2	EARTH TERMINAL	[M]
E603	SNE1004-2	EARTH TERMINAL	[M]
		FUSE HOLDER (S)	
FC1, 2	EYF52BC	FUSE HOLDER	[M]
FC3, 4	EYF52BC	FUSE HOLDER	[M] (GC)
		RELAY (S)	
RL701⚠	RSY0030-C	RELAY	[M]
		JACK (S)	
JK101	RJH5404M	ANTENNA	[M]
JK201	RJT065K19	SYSTEM	[M]
JK203	SJF3068-7N	EXT IN	[M]
JK204	SJF3069-5N	PHONO/EXT OUT	[M]
JK501	RJR0054M	SPEAKERS	[M]
JK502	RJH2305	SURROUND/CENTER SPEAKERS	[M]
JK551	SJT3213	FAN MOTOR	[M]
JK701⚠	SJS9236	AC INLET	[M]
JK901	RJJ65MA01	MIC 1	[M]
JK902	RJJ65MA01	MIC 2	[M]
JK903	RJJ37TN01-C	HEADPHONES	[M]

■ Resistors and Capacitors [For (GC) and (GN) areas]

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R103	ERDS2TJ271	1/4W 270 [M]
R104	ERDS2TJ822	1/4W 8.2K [M]
R105	ERDS2TJ471	1/4W 470 [M]
R106	ERDS2TJ474	1/4W 470K [M]
R107	ERDS2TJ331	1/4W 330 [M]
R108	ERDS2TJ474	1/4W 470K [M]
R109	ERDS2TJ331	1/4W 330 [M]
R110	ERDS2TJ102	1/4W 1K [M]
R112	ERDS2TJ104	1/4W 100K [M]
R113	ERDS2TJ103	1/4W 10K [M]
R114	ERDS2TJ562	1/4W 5.6K [M]
R115	ERDS2TJ561	1/4W 560 [M]
R116	ERDS2TJ102	1/4W 1K [M]
R117	ERDS2TJ273	1/4W 27K [M]
R118	ERDS2TJ562	1/4W 5.6K [M]
R119	ERDS2TJ682T	1/4W 6.8K [M]
R120	ERDS2TJ473	1/4W 47K [M]
R121	ERDS2TJ332	1/4W 3.3K [M]
R122	ERDS2TJ272T	1/4W 2.7K [M]
R124	ERDS2TJ271	1/4W 270 [M]
R125, 126	ERDS2TJ152	1/4W 1.5K [M]
R127	ERDS2TJ103	1/4W 10K [M]
R128	ERDS2TJ820	1/4W 82 [M]
R129	ERDS2TJ473	1/4W 47K [M]
R130	ERDS2TJ103	1/4W 10K [M]
R132	ERDS2TJ103	1/4W 10K [M]
R133-137	ERDS2TJ102	1/4W 1K [M]
R138	ERDS2TJ103	1/4W 10K [M]
R139, 140	ERDS2TJ272T	1/4W 2.7K [M]
R141, 142	ERDS2TJ102	1/4W 1K [M]
R143, 144	ERDS2TJ222	1/4W 2.2K [M]
R145, 146	ERDS2TJ102	1/4W 1K [M]
R147, 148	ERDS2TJ474	1/4W 470K [M]
R149	ERDS2TJ680T	1/4W 68 [M]
R171, 172	ERDS2TJ102	1/4W 1K [M]
R173	ERDS2TJ471	1/4W 470 [M]
R175	ERDS2TJ102	1/4W 1K [M]
R176	ERDS2TJ391	1/4W 390 [M]
R201, 202	ERDS2TJ102	1/4W 1K [M]
R203, 204	ERDS2TJ473	1/4W 47K [M]
R205, 206	ERDS2TJ331	1/4W 330 [M]
R207, 208	ERDS2TJ271	1/4W 270 [M]
R209, 210	ERDS2TJ184T	1/4W 180K [M]
R211, 212	ERDS2TJ123	1/4W 12K [M]
R213, 214	ERDS2TJ680T	1/4W 68 [M]
R215, 216	ERDS2TJ272T	1/4W 2.7K [M]
R217, 218	ERDS2TJ392T	1/4W 3.9K [M]
R221, 222	ERDS2FJ752	1/4W 7.5K [M]
R223, 224	ERDS2TJ562	1/4W 5.6K [M]
R225, 226	ERDS2TJ104	1/4W 100K [M]
R227, 228	ERDS2TJ222	1/4W 2.2K [M]
R229, 230	ERDS2TJ822	1/4W 8.2K [M]
R231-234	ERDS2TJ682T	1/4W 6.8K [M]
R235, 236	ERDS2TJ102	1/4W 1K [M]
R239-242	ERDS2TJ102	1/4W 1K [M]
R243, 244	ERDS2TJ152	1/4W 1.5K [M]
R245, 246	ERDS2TJ332	1/4W 3.3K [M]
R249, 250	ERDS2TJ101	1/4W 100 [M]
R251	ERDS2TJ222	1/4W 2.2K [M]
R253, 254	ERDS2TJ104	1/4W 100K [M]
R255, 256	ERDS2TJ123	1/4W 12K [M]
R257, 258	ERDS2TJ562	1/4W 5.6K [M]
R301	ERDS2TJ223	1/4W 22K [M]
R302	ERDS2TJ472	1/4W 4.7K [M]
R303, 304	ERDS2TJ222	1/4W 2.2K [M]
R305, 306	ERDS2TJ122	1/4W 1.2K [M]
R307, 308	ERDS2TJ104	1/4W 100K [M]
R309, 310	ERDS2TJ102	1/4W 1K [M]
R311, 312	ERDS2TJ104	1/4W 100K [M]
R313, 314	ERDS2EJ121	1/4W 120 [M]
R315	ERDS2TJ104	1/4W 100K [M]
R316	ERDS2TJ222	1/4W 2.2K [M]
R317	ERDS2TJ105T	1/4W 1M [M]
R318	ERDS2TJ153	1/4W 15K [M]
R319	ERDS2TJ472	1/4W 4.7K [M]
R321	ERDS2TJ104	1/4W 100K [M]
R322	ERDS2TJ222	1/4W 2.2K [M]
R324	ERDS2TJ223	1/4W 22K [M]
R326	ERDS2TJ332	1/4W 3.3K [M]
R327	ERDS2TJ392T	1/4W 3.9K [M]
R328	ERDS2TJ332	1/4W 3.3K [M]
R329	ERDS2TJ103	1/4W 10K [M]
R330	ERDS2TJ332	1/4W 3.3K [M]
R331	ERDS2TJ102	1/4W 1K [M]
R332-334	ERDS2TJ222	1/4W 2.2K [M]
R335, 336	ERDS2TJ683	1/4W 68K [M]
R338	ERDS2TJ392T	1/4W 3.9K [M]
R343	ERDS2TJ334	1/4W 330K [M]
R353	ERDS2TJ104	1/4W 100K [M]
R354	ERDS2TJ223	1/4W 22K [M]
R360	ERDS2TJ223	1/4W 22K [M]
R364	ERDS2TJ103	1/4W 10K [M]
R365	ERDS2TJ223	1/4W 22K [M]
R371, 372	ERDS2TJ103	1/4W 10K [M]
R373-376	ERDS2TJ223	1/4W 22K [M]
R378, 379	ERDS2TJ182	1/4W 1.8K [M]
R380-382	ERDS2TJ153	1/4W 15K [M]
R385, 386	ERDS2TJ222	1/4W 2.2K [M]
R401, 402	ERDS2TJ681	1/4W 680 [M]
R403	ERDS2TJ223	1/4W 22K [M]
R404	ERDS2TJ471	1/4W 470 [M]
R405	ERDS2TJ472	1/4W 4.7K [M]
R406	ERDS2TJ474	1/4W 470K [M]
R407	ERDS2TJ472	1/4W 4.7K [M]
R409	ERDS2TJ472	1/4W 4.7K [M]
R410	ERDS2TJ222	1/4W 2.2K [M]
R411	ERDS2TJ331	1/4W 330 [M]
R412	ERDS2TJ105T	1/4W 1M [M]
R415	ERDS2TJ102	1/4W 1K [M]
R416	ERDS2TJ181T	1/4W 180 [M]
R421	ERDS2TJ223	1/4W 22K [M]
R450	ERDS2TJ682T	1/4W 6.8K [M]
R451, 452	ERDS2TJ223	1/4W 22K [M]
R453	ERDS2TJ1R0	1/4W 1.0 [M]
R454	ERDS2TJ103	1/4W 10K [M]
R455	ERDS2TJ223	1/4W 22K [M]
R456	ERDS2EJ121	1/4W 120 [M]
R457	ERDS2TJ822	1/4W 8.2K [M]
R458	ERDS2TJ123	1/4W 12K [M]
R459	ERDS2TJ472	1/4W 4.7K [M]
R460	ERDS2TJ153	1/4W 15K [M]
R461	ERDS2TJ472	1/4W 4.7K [M]
R462	ERDS2TJ103	1/4W 10K [M]
R463	ERDS2TJ223	1/4W 22K [M]
R464	ERDS2TJ103	1/4W 10K [M]
R465	ERDS2TJ104	1/4W 100K [M]
R503, 504	ERDS2TJ333	1/4W 33K [M]
R505, 506	ERDS2TJ153	1/4W 15K [M]
R507, 508	ERDS2TJ332	1/4W 3.3K [M]
R509-512	ERDS2TJ560T	1/4W 56 [M]
R521	ERDS2TJ561	1/4W 560 [M]
R551	ERDS2TJ183T	1/4W 18K [M]
R552	ERDS2TJ473	1/4W 47K [M]
R555	ERDS2TJ223	1/4W 22K [M]
R556	ERDS2TJ104	1/4W 100K [M]
R557	ERDS2TJ472	1/4W 4.7K [M]
R558	ERDS2TJ102	1/4W 1K [M]
R559	ERDS2TJ472	1/4W 4.7K [M]
R560, 561	ERDS2TJ104	1/4W 100K [M]
R563, 564	ERDS2TJ273	1/4W 27K [M]
R566	ERDS2TJ683	1/4W 68K [M]
R567	ERG1SJ220	1W 22 [M]
R568	ERDS2TJ101	1/4W 100 [M]
R569	ERDS2TJ103	1/4W 10K [M]

Ref. No.	Part No.	Values & Remarks
R570	ERDS2TJ225	1/4W 2.2M [M]
R591	ERDS2TJ473	1/4W 47K [M]
R602, 603	ERDS2TJ221	1/4W 220 [M]
R604, 605	ERDS2TJ103	1/4W 10K [M]
R609, 610	ERDS2TJ563	1/4W 56K [M]
R611, 612	ERDS2TJ332	1/4W 3.3K [M]
R613	ERDS2TJ104	1/4W 100K [M]
R614	ERDS2TJ124T	1/4W 120K [M]
R615, 616	ERDS2TJ182	1/4W 1.8K [M]
R619, 620	ERDS2TJ563	1/4W 56K [M]
R621	ERDS2TJ273	1/4W 27K [M]
R622	ERDS2TJ473	1/4W 47K [M]
R623	ERDS2TJ474	1/4W 470K [M]
R624	ERDS2TJ223	1/4W 22K [M]
R626	ERDS2TJ154	1/4W 150K [M]
R627	ERDS2TJ124T	1/4W 120K [M]
R628	ERDS2TJ184T	1/4W 180K [M]
R629	ERDS2TJ683	1/4W 68K [M]
R630	ERDS2TJ473	1/4W 47K [M]
R631	ERDS2TJ224T	1/4W 220K [M]
R632, 633	ERDS2TJ563	1/4W 56K [M]
R637	ERDS2TJ154	1/4W 150K [M]
R638	ERDS2TJ684	1/4W 680K [M]
R639-646⚠	ERDS1FJ100	1/2W 10 [M]
R647, 648	ERQ16NKWR15E	1/6W 0.15 [M]
R651	ERDS2TJ222	1/4W 2.2K [M]
R652	ERDS2TJ393	1/4W 39K [M]
R653	ERDS2TJ272T	1/4W 2.7K [M]
R654	ERDS2TJ222	1/4W 2.2K [M]
R655-658	ERDS2TJ183T	1/4W 18K [M]
R659	ERDS2TJ222	1/4W 2.2K [M]
R663	ERDS2TJ393	1/4W 39K [M]
R665, 666	ERDS2TJ562	1/4W 5.6K [M]
R667	ERDS2TJ331	1/4W 330 [M]
R701, 702	ERDS2TJ273	1/4W 27K [M]
R703, 704	ERDS2TJ101	1/4W 100 [M]
R707⚠	ERD25FVJ4R7T	1/4W 4.7 [M]
R708	ERDS2TJ472	1/4W 4.7K [M]
R712	ERDS2TJ152	1/4W 1.5K [M]
R713, 714	ERDS2TJ332	1/4W 3.3K [M]
R715	ERDS2TJ183T	1/4W 18K [M]
R717	ERDS2TJ473	1/4W 47K [M]
R721⚠	ERD2FCJ4R7	1/4W 4.7 [M]
R722⚠	ERQ16NKW2R2E	1W 2.2 [M]
R723	ERDS2TJ562	1/4W 5.6K [M]
R724	ERDS2TJ392T	1/4W 3.9K [M]
R725, 726	ERDS2TJ100	1/4W 10 [M]
R727	ERDS2TJ392T	1/4W 3.9K [M]
R729	ERDS2TJ221	1/4W 220 [M]
R735⚠	ERD25FVJ4R7T	1/4W 4.7 [M]
R736	ERDS2TJ102	1/4W 1K [M]
R737	ERDS2TJ221	1/4W 220 [M]
R738	ERDS2TJ392T	1/4W 3.9K [M]
R739	ERDS2TJ473	1/4W 47K [M]
R748	ERDS2TJ102	1/4W 1K [M]
R749	ERDS2TJ271	1/4W 270 [M]
R755⚠	ERDS1FVJ8R2T	1/2W 8.2 [M]
R756⚠	ERDS1FJ4R7	1/2W 4.7 [M]
R757-759	ERDS2TJ103	1/4W 10K [M]
R761, 762	ERDS2TJ822	1/4W 8.2K [M]
R763	ERDS2TJ472	1/4W 4.7K [M]
R764	ERDS2TJ331	1/4W 330 [M]
R765⚠	ERDS1FVJ561T	1/2W 560 [M]
R766	ERDS2TJ102	1/4W 1K [M]
R767⚠	ERD25FVJ4R7T	1/4W 4.7 [M]
R768	ERDS2TJ101	1/4W 100 [M]
R791, 792⚠	RSFMB30KT-L	PROTECTOR [M]
R801, 802	ERDS2TJ393	1/4W 39K [M]
R808	ERDS2TJ104	1/4W 100K [M]
R819	ERDS2TJ393	1/4W 39K [M]
R822	ERDS2TJ102	1/4W 1K [M]
R823	ERDS2TJ105T	1/4W 1M [M]
R825-827	ERDS2TJ332	1/4W 3.3K [M]
R835, 836	ERDS2TJ222	1/4W 2.2K [M]
R837, 838	ERDS2TJ332	1/4W 3.3K [M]
R842	ERDS2TJ104	1/4W 100K [M]
R843, 844	ERDS2TJ222	1/4W 2.2K [M]
R845	ERDS2TJ104	1/4W 100K [M]
R846	ERDS2TJ122	1/4W 1.2K [M]
R847, 848	ERDS2TJ472	1/4W 4.7K [M]
R849	ERDS2TJ122	1/4W 1.2K [M]
R850	ERDS2TJ222	1/4W 2.2K [M]
R851	ERDS2TJ473	1/4W 47K [M]
R852	ERDS2TJ393	1/4W 39K [M]
R853	ERDS2TJ473	1/4W 47K [M]
R854	ERDS2TJ393	1/4W 39K [M]
R855	ERDS2TJ104	1/4W 100K [M]
R856, 857	ERDS2TJ123	1/4W 12K [M]
R859, 860	ERDS2EJ121	1/4W 120 [M]
R861	ERDS2TJ105T	1/4W 1M [M]
R862	ERDS2TJ472	1/4W 4.7K [M]
R863, 864	ERDS2TJ105T	1/4W 1M [M]
R865	ERDS2TJ102	1/4W 1K [M]
R866, 867	ERDS2TJ222	1/4W 2.2K [M]
R868-870	ERDS2TJ102	1/4W 1K [M]
R871, 872	ERDS2TJ4R7T	1/4W 4.7 [M]
R873⚠	ERD2FCJ4R7	1/4W 4.7 [M]
R874	ERDS2TJ104	1/4W 100K [M]
R875	ERDS2TJ102	1/4W 1K [M]
R882	ERDS2TJ103	1/4W 10K [M]
R891	ERDS2TJ331	1/4W 330 [M]
R901	ERDS2TJ821	1/4W 820 [M]
R902	ERDS2TJ102	1/4W 1K [M]
R903	ERDS2TJ122	1/4W 1.2K [M]
R904	ERDS2TJ152	1/4W 1.5K [M]
R905	ERDS2TJ182	1/4W 1.8K [M]
R906	ERDS2TJ222	1/4W 2.2K [M]
R907	ERDS2TJ272T	1/4W 2.7K [M]
R908	ERDS2TJ472	1/4W 4.7K [M]
R909	ERDS2TJ682T	1/4W 6.8K [M]
R910	ERDS2TJ123	1/4W 12K [M]
R911	ERDS2TJ223	1/4W 22K [M]
R912	ERDS2TJ821	1/4W 820 [M]
R919-923	ERDS2TJ103	1/4W 10K [M]
R924-927	ERDS2TJ102	1/4W 1K [M]
R929	ERDS2TJ102	1/4W 1K [M]
R930	ERDS2TJ101	1/4W 100 [M]
R931-936	ERDS2TJ102	1/4W 1K [M]
R937	ERDS2TJ562	1/4W 5.6K [M]
R938	ERDS2TJ102	1/4W 1K [M]
R939	ERDS2TJ152	1/4W 1.5K [M]
R940, 941	ERDS2TJ102	1/4W 1K [M]
R942	ERDS2TJ101	1/4W 100 [M]
R943	ERDS2TJ102	1/4W 1K [M]
R946	ERDS2TJ102	1/4W 1K [M]
R947, 948	ERDS2TJ104	1/4W 100K [M]
R949	ERDS2TJ472	1/4W 4.7K [M]
R950	ERDS2TJ101	1/4W 100 [M]
R951	ERDS2TJ334	1/4W 330K [M]
R952	ERDS2TJ106T	1/4W 10M [M]
R953	ERDS2TJ101	1/4W 100 [M]
R954	ERDS2TJ104	1/4W 100K [M]
R955	ERDS2TJ824	1/4W 820K [M]
R956-958	ERDS2TJ102	1/4W 1K [M]
R959	ERDS2TJ471	1/4W 470 [M]
R960	ERDS2TJ152	1/4W 1.5K [M]
R961, 962	ERDS2TJ223	1/4W 22K [M]
R963, 964	ERDS2TJ103	1/4W 10K [M]
R965	ERDS2TJ472	1/4W 4.7K [M]
R966	ERDS2TJ103	1/4W 10K [M]
R967	ERDS2TJ473	1/4W 47K [M]
R968	ERDS2TJ103	1/4W 10K [M]
R969, 970	ERDS2TJ472	1/4W 4.7K [M]
R971	ERDS2TJ473	1/4W 47K [M]
R972	ERDS2TJ223	1/4W 22K [M]
R974	ERDS2TJ101	1/4W 100 [M]
R975	ERDS2TJ181T	1/4W 180 [M]
R977-981	ERDS2TJ104	1/4W 100K [M]
R984, 985	ERDS2TJ473	1/4W 47K [M]
R986-988	ERDS2TJ102	1/4W 1K [M]
R989, 990	ERDS2TJ393	1/4W 39K [M]
R991	ERDS2TJ473	1/4W 47K [M]
R993, 994	ERDS2TJ104	1/4W 100K [M]
R996, 997	ERDS2TJ151	1/4W 150 [M]
		CAPACITORS

Ref. No.	Part No.	Values & Remarks
C101	ECBT1C103NS5	16V 0.01U [M]
C103	ECBT1C103NS5	16V 0.01U [M]
C104, 105	ECBT1H102KB5	50V 1000P [M]
C106	ECBT1C103NS5	16V 0.01U [M]
C107	ECBT1H473ZF5	50V 0.047U [M]
C108	ECBT1H8R2KC5	50V 8.2P [M]
C109, 110	ECBT1C103NS5	16V 0.01U [M]
C111	ECEA1EKA4R7B	25V 4.7U [M]
C112	ECBT1C103NS5	16V 0.01U [M]
C113	ECBT1H102KB5	50V 1000P [M]
C114	RCE1HKA3R3BG	50V 3.3U [M]
C115	ECEA1EKA4R7B	25V 4.7U [M]
C116	ECBT1C822KS5	16V 8200P [M]
C117	ECQB1H102JF3	50V 1000P [M]
C118, 119	ECFR1C103KR	16V 0.01U [M]
C120, 121	ECEA1HKA010B	50V 1U [M]
C122	ECEA1HKA2R2B	50V 2.2U [M]
C123	ECEA1HKA010B	50V 1U [M]
C124	ECBT1H102KB5	50V 1000P [M]
C125	ECBT1H150JC5	50V 15P [M]
C126	ECBT1H473ZF5	50V 0.047U [M]
C127	ECEA1CKA220B	16V 22U [M]
C128	ECBT1H102KB5	50V 1000P [M]
C129, 130	ECEA0JKA101B	6.3V 100U [M]
C132	ECBT1H102KB5	50V 1000P [M]
C133, 134	ECBT1H270JU5	50V 27P [M]
C135, 136	ECBT1C103KS5	16V 0.01U [M]
C137, 138	ECBT1H561KB5	50V 560P [M]
C139, 140	ECBT1C562KR5	16V 5600P [M]
C141-144	ECEA1HKA010B	50V 1U [M]
C145	ECBT1H220JC5	50V 22P [M]
C148	ECBT1C103NS5	16V 0.01U [M]
C149	ECBT1H104ZF5	50V 0.1U [M]
C171, 172	ECBT1H102KB5	50V 1000P [M]
C173	ECEA1CKA220B	16V 22U [M]
C174	RCE1CKA100BG	16V 10U [M]
C196	ECBT1H102KB5	50V 1000P [M]
C201, 202	ECBT1H180J5	50V 18P [M]
C203, 204	ECBT1H151KB5	50V 150P [M]
C205, 206	ECBT1H102KB5	50V 1000P [M]
C207, 208	RCE1AKA330BG	10V 33U [M]
C209, 210	ECBT0J223MS5	6.3V 0.022U [M]
C211, 212	ECBT1C682KR5	16V 6800P [M]
C213, 214	RCE1CKA100BG	16V 10U [M]
C215	ECBT1E103ZF	25V 0.01U [M]
C217	ECBT1E103ZF	25V 0.01U [M]
C219-226	ECBT1H101KB5	50V 100P [M]
C229-234	ECBT1H101KB5	50V 100P [M]
C235, 236	ECBT1H104ZF5	50V 0.1U [M]
C301	ECBT1H102KB5	50V 1000P [M]
C302, 303	ECBT1H561KB5	50V 560P [M]

Ref. No.	Part No.	Values & Remarks
C309	ECEA1HKAR22B	50V 0.22U [M]
C310	ECFR1C393KR	16V 0.039U [M]
C312	ECFR1C823MR	16V 0.082U [M]
C313	ECFR1C103KR	16V 0.01U [M]
C315	ECFR1C223KR	16V 0.022U [M]
C316	ECBT1C332KR5	16V 3300P [M]
C318	ECBT1C682KR5	16V 6800P [M]
C319	ECBT1H102KB5	50V 1000P [M]
C320	ECBA1H681KB5	50V 680P [M]
C321	ECBT1C332KR5	16V 3300P [M]
C322	ECQV1H333JM3	50V 0.033U [M]
C324	ECFR1C683KR	16V 0.068U [M]
C325	ECQV1H154JM3	50V 0.15U [M]
C326	ECBT1H102KB5	50V 1000P [M]
C327	ECBT1H471KB5	50V 470P [M]
C328	RCE1CKA470BG	16V 47U [M]
C329	ECEA1HKA2R2B	50V 2.2U [M]
C330	ECBA1H681KB5	50V 680P [M]
C331	ECBT1H104ZF5	50V 0.1U [M]
C332-334	ECBT1H470J5	50V 47P [M]
C336	ECBT1H104ZF5	50V 0.1U [M]
C337	RCE1CKA470BG	16V 47U [M]
C338	ECBT1H471KB5	50V 470P [M]
C339	ECBT1H102KB5	50V 1000P [M]
C340	ECQV1H154JM3	50V 0.15U [M]
C341	ECFR1C683KR	16V 0.068U [M]
C342	ECQV1H333JM3	50V 0.033U [M]
C343	ECEA1HKA2R2B	50V 2.2U [M]
C344	ECBT1C332KR5	16V 3300P [M]
C346	ECBT1H102KB5	50V 1000P [M]
C347	ECBT1C682KR5	16V 6800P [M]
C348	RCE1CKA100BG	16V 10U [M]
C349	ECBT1C332KR5	16V 3300P [M]
C350	ECFR1C223KR	16V 0.022U [M]
C352	ECFR1C103KR	16V 0.01U [M]
C353	ECFR1C823MR	16V 0.082U [M]
C354	ECEA1CN100SB	16V 10U [M]
C355	ECFR1C393KR	16V 0.039U [M]
C356	ECEA1HKAR22B	50V 0.22U [M]
C357, 358	ECQV1H683JM3	50V 0.068U [M]
C359	RCE1HKA3R3BG	50V 3.3U [M]
C360	RCE1HKA4R7BG	50V 4.7U [M]
C361, 362	ECBT1C222KR5	16V 2200P [M]
C364	ECBT1C152KR5	16V 1500P [M]
C365	ECQV1H154JM3	50V 0.15U [M]
C371	ECEA0JKA101B	6.3V 100U [M]
C372	ECBT1H104ZF5	50V 0.1U [M]
C375, 376	ECFR1C333KR	16V 0.033U [M]
C378, 379	ECFR1C473KR	16V 0.047U [M]
C381	ECBT1E103ZF	25V 0.01U [M]
C385, 386	ECEA1HKAR22B	50V 0.22U [M]
C395, 396	ECBT1H473ZF5	50V 0.047U [M]

Ref. No.	Part No.	Values & Remarks
C401	ECBT1H102KB5	50V 1000P [M]
C403	ECBT1H102KB5	50V 1000P [M]
C404	RCE1HKA3R3BG	50V 3.3U [M]
C405	ECBT1H471KB5	50V 470P [M]
C406	ECEA1EU4R7	25V 4.7U [M]
C407	ECBT1E103ZF	25V 0.01U [M]
C408	ECBT1C103MS5	16V 0.01U [M]
C409	ECEA1HKA010B	50V 1U [M]
C410	ECEA1CKS100L	16V 10U [M]
C411	ECBT1H101KB5	50V 100P [M]
C412	ECBT1H102KB5	50V 1000P [M]
C413	ECEA1HKA010B	50V 1U [M]
C414	ECEA1AKA221B	10V 220U [M]
C415	ECEA1HKA010B	50V 1U [M]
C416	RCE1CKA100BG	16V 10U [M]
C417	ECBT1C472KR5	16V 4700P [M]
C418	ECBT1H221KB5	50V 220P [M]
C419	RCE1CKA100BG	16V 10U [M]
C420	ECBT1H104ZF5	50V 0.1U [M]
C421	RCE1AKA101BG	10V 100U [M]
C422	ECBT1C103KS5	16V 0.01U [M]
C424	ECBT1C103KS5	16V 0.01U [M]
C425	ECBT1C332MR5	16V 3300P [M]
C426	ECEA1HKA010B	50V 1U [M]
C427	ECBT0J223MS5	6.3V 0.022U [M]
C428	ECEA1HKA010B	50V 1U [M]
C429	ECBT1C472MR5	16V 4700P [M]
C430	ECBT1C103KS5	16V 0.01U [M]
C431	ECEA1HKNR47B	50V 0.47U [M]
C432	ECBT0J223MS5	6.3V 0.022U [M]
C433	RCE1CKA470BG	16V 47U [M]
C434	RCE1CKA100BG	16V 10U [M]
C441	ECBT1E103ZF	25V 0.01U [M]
C501-506	ECBT1H101KB5	50V 100P [M]
C507, 508	RCE1CKA100BG	16V 10U [M]
C509-512	ECBT1E103ZF	25V 0.01U [M]
C551	ECEA1HKA2R2B	50V 2.2U [M]
C552	ECBT1E103ZF	25V 0.01U [M]
C554	ECA1AM221B	10V 220U [M]
C555, 556	ECEA1CKN100B	16V 10U [M]
C557, 558	ECFR1C393KR	16V 0.039U [M]
C559	ECBT1E103ZF	25V 0.01U [M]
C602-605	RCE1CKA100BG	16V 10U [M]
C607-610	ECBT1H471KB5	50V 470P [M]
C611-614	ECBT1H150JC5	50V 15P [M]
C615	ECEA2AU010	100V 1U [M]
C616	ECA1JM330B	63V 33U [M]
C617	ECEA1HN2R2	50V 2.2U [M]
C618	ECA1HM101B	50V 100U [M]
C620, 621	ECQV1H473JM3	50V 0.047U [M]
C624, 625	ECQV1H473JM3	50V 0.047U [M]
C628, 629	RCE1CKA100BG	16V 10U [M]

Ref. No.	Part No.	Values & Remarks
C654	ECEA1EKN3R3B	25V 3.3U [M]
C655	ECEA2AU3R3B	100V 3.3U [M]
C656	ECBT1E103ZF	25V 0.01U [M]
C657	ECBT1H104ZF5	50V 0.1U [M]
C701-704⚠	ECA1VM472E	35V 4700U [M]
C705	RCE1CKA100BG	16V 10U [M]
C706	RCE1VKA100BG	35V 10U [M]
C707	ECBT1E103ZF	25V 0.01U [M]
C708	RCE1CKA100BG	16V 10U [M]
C709	ECBT1H104ZF5	50V 0.1U [M]
C710	ECBT1E103ZF	25V 0.01U [M]
C711	RCE1EM471BV	25V 470U [M]
C714	ECBT1H102KB5	50V 1000P [M]
C715⚠	ECA1EM472E	25V 4700U [M]
C717	ECEA1CKA330B	16V 33U [M]
C718	RCE1AKA101BG	10V 100U [M]
C719, 720	ECBT1E103ZF	25V 0.01U [M]
C721	RCE1AKA101BG	10V 100U [M]
C723	ECBT1E103ZF	25V 0.01U [M]
C725	RCE1CKA100BG	16V 10U [M]
C726	ECBT1E103ZF	25V 0.01U [M]
C731	ECBT1H102KB5	50V 1000P [M]
C732	ECBT1E223ZF	25V 0.022U [M]
C734	RCE1CKA100BG	16V 10U [M]
C736⚠	ECA1EM101B	25V 100U [M]
C737, 738⚠	ECA1HM101B	50V 100U [M]
C739⚠	ECA1JM101B	63V 100U [M]
C740	RCE1CKA100BG	16V 10U [M]
C741	ECBT1H104ZF5	50V 0.1U [M]
C801	ECQV1H154JM3	50V 0.15U [M]
C802	RCE1HKA3R3BG	50V 3.3U [M]
C803	ECQV1H154JM3	50V 0.15U [M]
C804	RCE1HKA4R7BG	50V 4.7U [M]
C805	RCE1HKAR47BG	50V 0.47U [M]
C806	RCE1HKA4R7BG	50V 4.7U [M]
C807	RCE1HKAR47BG	50V 0.47U [M]
C808	RCE1CKA100BG	16V 10U [M]
C809	ECEA1HKA010B	50V 1U [M]
C811, 812	ECEA1CKA330B	16V 33U [M]
C813	ECA1CM221B	16V 220U [M]
C814-817	RCE1CKA100BG	16V 10U [M]
C818	ECEA1HKA2R2B	50V 2.2U [M]
C820	ECEA1HKAR33B	50V 0.33U [M]
C821	ECA1CM221B	16V 220U [M]
C824	ECA1CM221B	16V 220U [M]
C825, 826	ECBT1H101KB5	50V 100P [M]
C827	ECBT1H330J5	50V 33P [M]
C828	ECFR1C823MR	16V 0.082U [M]
C829	ECFR1E332KR	25V 3300P [M]
C830	ECFR1C823MR	16V 0.082U [M]
C831	RCE1HKAR47BG	50V 0.47U [M]
C832	ECQV1H473JM3	50V 0.047U [M]
C833	ECA1CM221B	16V 220U [M]
C834	RCE1HKAR47BG	50V 0.47U [M]
C835	RCE1CKA470BG	16V 47U [M]
C836	ECEA1HKA010B	50V 1U [M]
C837	ECBT1H104ZF5	50V 0.1U [M]
C840, 841	RCE1CKA100BG	16V 10U [M]
C842	RCE1HKAR47BG	50V 0.47U [M]
C843	RCE1HKA4R7BG	50V 4.7U [M]
C844	RCE1HKAR47BG	50V 0.47U [M]
C845	RCE1HKA4R7BG	50V 4.7U [M]
C846	ECQV1H154JM3	50V 0.15U [M]
C847	RCE1HKA3R3BG	50V 3.3U [M]
C848	ECQV1H154JM3	50V 0.15U [M]
C851	RCE1CKA470BG	16V 47U [M]
C852	ECBA1H681KB5	50V 680P [M]
C861, 862	RCE1CKA100BG	16V 10U [M]
C863, 864	ECEA1CKA220B	16V 22U [M]
C865, 866	RCE1HKA3R3BG	50V 3.3U [M]
C867-869	ECEA1CKA330B	16V 33U [M]
C870	RCE1CKA100BG	16V 10U [M]
C871, 872	ECBT1H470J5	50V 47P [M]
C873, 874	ECEA0JKA470B	6.3V 47U [M]
C875, 876	RCE1CKA100BG	16V 10U [M]
C877	ECEA0JKA101B	6.3V 100U [M]
C878	ECBT1E103ZF	25V 0.01U [M]
C880	ECEA1CKA101B	16V 100U [M]
C882	ECEA1CKA101B	16V 100U [M]
C883	ECBT0J223MS5	6.3V 0.022U [M]
C887	ECBT1H102KB5	50V 1000P [M]
C888, 889	ECBT1H221KB5	50V 220P [M]
C901	ECBT1H104ZF5	50V 0.1U [M]
C902	ECA0JM102B	6.3V 1000U [M]
C903	ECBT1E103ZF	25V 0.01U [M]
C905-908	ECBT1H471KB5	50V 470P [M]
C909	ECBT1H102KB5	50V 1000P [M]
C910	ECBT1H150JC5	50V 15P [M]
C911	ECBT1H180JC5	50V 18P [M]
C912	ECBT1H104ZF5	50V 0.1U [M]
C913	RCE1CKA100BG	16V 10U [M]
C914	ECEA1HKA2R2B	50V 2.2U [M]
C915	ECBT1E103ZF	25V 0.01U [M]
C916	ECA0JKF101B	6.3V 100U [M]
C917	ECBT1E103ZF	25V 0.01U [M]
C918	ECEA0JKA221B	6.3V 220U [M]
C919, 920	ECEA1HKS2R2B	50V 2.2U [M]
C921	ECBT1H102KB5	50V 1000P [M]
C922	ECEA1VKA330B	35V 33U [M]
C1101, 1102	ECBT1H473ZF5	50V 0.047U [M]
C1103-1106	ECBT1H102KB5	50V 1000P [M]
C1107, 1108	ECBT1H473ZF5	50V 0.047U [M]
C1109-1111	ECBT1H102KB5	50V 1000P [M]

■ Replacement Parts List (Cabinet, Packing, Accessory and Jig/Tool)

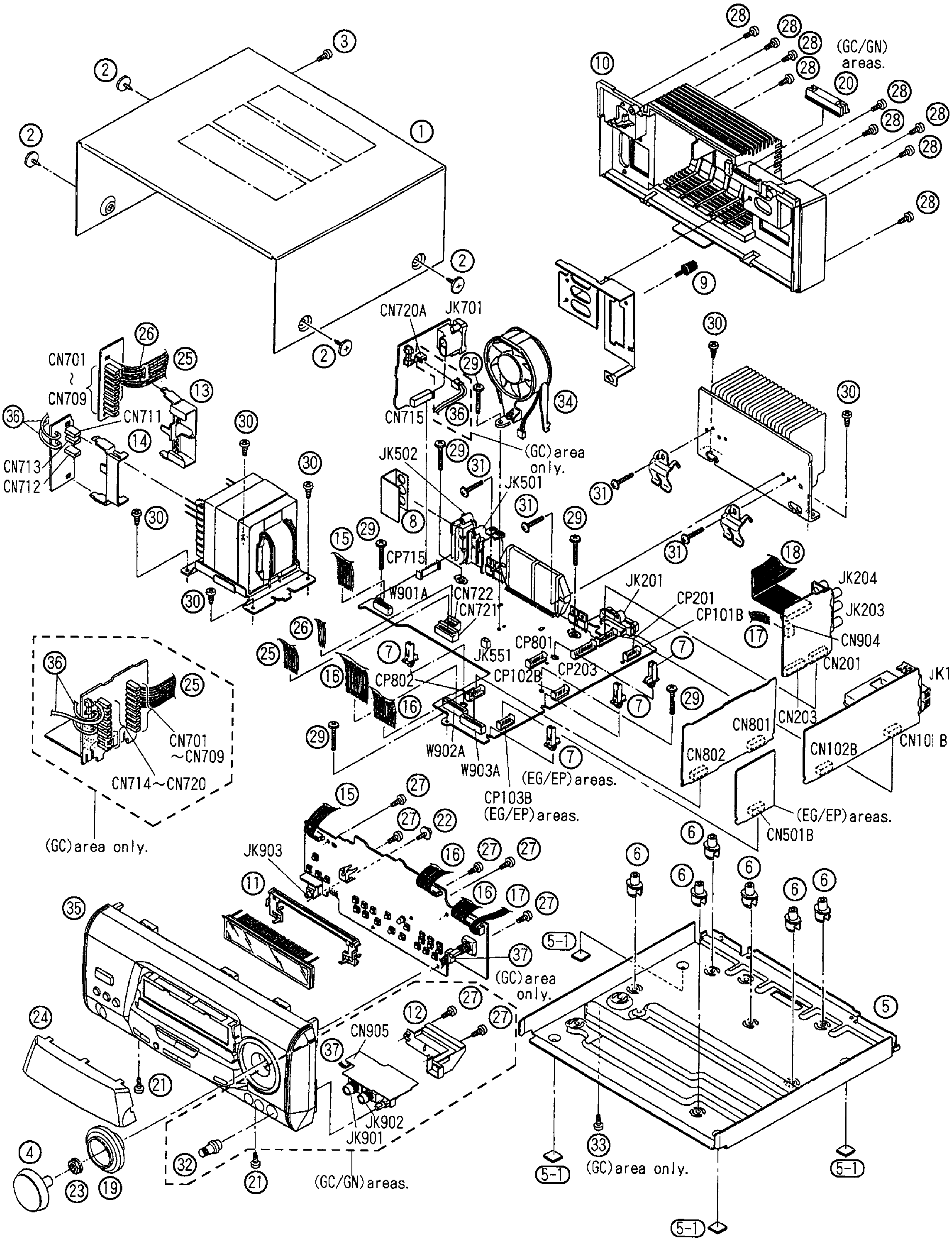
Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RKM0202F-K	CABINET	[M]
2	RHD30007-K1	SCREW	[M]
3	XTBS3+10JFZ1	SCREW	[M]
4	RGW0183-K	KNOB, VOLUME	[M]
5	RFKJAEH50E-K	CHASSIS ASS'Y	[M] (E/EB/EG/EP/GN)
5	RFKJAEH50GCK	CHASSIS ASS'Y	[M] (GC)
5-1	SHG1645	RUBBER	[M]
6	RKQ0089-2	P.C.B. SPACER	[M]
7	RMN0203	P.C.B. HOLDER 1	[M]
8	RMV0136	HOLDER	[M]
9	RHD30070	SCREW	[M]
10	RKF0513D-K	REAR PANEL	[M] (E/EG/EP)
10	RFKHAEH60EBK	REAR PANEL ASS'Y	[M] (EB)
10	RFKHAEH60GCK	REAR PANEL ASS'Y	[M] (GC)
10	RFKHAEH60GNK	REAR PANEL ASS'Y	[M] (GN)
11	RMN0426	FL HOLDER	[M]
12	RMN0425	JACK HOLDER	[M] (GC/GN)
13	RMN0429	P.C.B. HOLDER 2	[M]
14	RMN0437	P.C.B. HOLDER 3	[M]
15	RWJ7610260QQ	FLAT CABLE(W901/10P)	[M]
16	RWJ7615210QQ	FLAT CABLE(W902·W903/15P)	[M]
17	RWJ6805330QR	FLAT CABLE(W904/5P)	[M]
18	REX0852	WIRE ASS'Y(W202)	[M]
19	RGK0894-N	ORNAMENT	[M]
20	RLBT4001-D	FERRITE CORE	[M] (GC/GN)
21	XTBS3+8JFZ1	SCREW	[M]
22	RHD26016	SCREW	[M]
23	RHN90001	NUT	[M]
24	RKW0506B-Q	FL PANEL	[M]
25	RWJ1809150KQ	FLAT CABLE(W721/9P)	[M] (E/EG/EB/EP/GN)
26	RWJ1804150KQ	FLAT CABLE(W722/4P)	[M] (E/EG/EB/EP/GN)
27	XTBS26+8J	SCREW	[M]
28	XTB3+10JFZ	SCREW	[M]
29	XTB3+20JFZ	SCREW	[M]
30	XTB3+8JFZ	SCREW	[M]
31	XTW3+15T	SCREW	[M]
32	RGW0235-K	KNOB, MIC VOLUME	[M] (GC/GN)
33	XTB3+8FFZ	SCREW	[M] (GC)
34	REM0057	FAN UNIT	[M]
35	RFKGAEH60E-K	FRONT PANEL ASS'Y	[M] (E/EB)
35	RFKGAEH60EGK	FRONT PANEL ASS'Y	[M] (EG/EP)
35	RFKGAEH60GCK	FRONT PANEL ASS'Y	[M] (GC/GN)
36	RFKEAEH60GCK	WIRE ASS'Y	[M] (GC)
37	REZ0971	FLAT CABLE(W905/5P)	[M] (GC/GN)
		PACKING MATERIALS	
P1	RPN1036-1	PAD(SA-EH60)	[M]
P1	RPN1038	PAD(SH-EH60)	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
P1	RPN1039	PAD(SL-EH60)	[M]
P1	RPN1037	PAD(RS-EH60)	[M]
P2	RPQ0779	PAD(SA-EH60)	[M] (E/EB/EG)
P3	RPQ0734	PAD(SA-EH60)	[M] (E/EB/EG)
P4	RPQ0777-1	PAD(SH-EH60)	[M] (E)
P5	RPQ0734	PAD(RS-EH60)	[M] (E)
P6	RPQ0776-1	PAD(RS-EH60)	[M] (E)
P7	RPQ0769	PAD(SYSTEM)	[M] (GC/GN)
P8	RPF0139	PROTECTION COVER(SA-EH60)	[M]
P9	RPG3520	PACKING CASE(SA-EH60)	[M] (E/EB/EG)
P9	RPG3517	PACKING CASE(SA-EH60)	[M] (EP/GC/GN)
P9	RPG3452	PACKING CASE(SH-EH60)	[M] (E)
P9	RPG3513	PACKING CASE(SH-EH60)	[M] (EP)
P9	RPG3514	PACKING CASE(SH-EH60)	[M] (GC)
P9	RPG3349	PACKING CASE(SL-EH60)	[M] (E)
P9	RPG3516	PACKING CASE(SL-EH60)	[M] (EP)
P9	RPG3453	PACKING CASE(RS-EH60)	[M] (E)
P9	RPG3515	PACKING CASE(RS-EH60)	[M] (EP)
P10	RPG3519	PACKING CASE(SYSTEM)	[M] (EP)
P10	RPG3343	PACKING CASE(SYSTEM)	[M] (GC)
P10	RPG3344	PACKING CASE(SYSTEM)	[M] (GN)
P11	SPP740	SHEET	[M]
		ACCESSORIES	
A1	RAK-CH219WH	REMOTE CONTROL TRANSMITTER	[M]
A1-1	RKK0057-K	BATTERY COVER	[M]
A2	REE0393	SPEAKER CORD	[M]
A3⚠	RJA0019-X	AC POWER SUPPLY CORD	[M] (E/EG/EP/GC)
A3⚠	RJA0053-1X	AC POWER SUPPLY CORD	[M] (EB)
A3⚠	RJA0035-X	AC POWER SUPPLY CORD	[M] (GN)
A4	RQA0117	WARRANTY CARD	[M] (E/EB/EG)
A4	RQX7433ZA	WARRANTY CARD	[M] (GN)
A5<IA>	RQT3988-E	INSTRUCTION MANUAL	[M] (E)
A5<IB>	RQT3868-B	INSTRUCTION MANUAL	[M] (EB/EP/GN)
A5<IC>	RQT3870-D	INSTRUCTION MANUAL	[M] (EG)
A5<ID>	RQT3871-H	INSTRUCTION MANUAL	[M] (EG)
A5<IE>	RQT3869-R	INSTRUCTION MANUAL	[M] (EP)
A5<IF>	RQT3873-G	INSTRUCTION NANUAL	[M] (GC)
A6	RSA0007	FM INDOOR ANTENNA	[M] (E/EB/EG/EP)
A6	RSA0006	FM INDOOR ANTENNA	[M] (GC/GN)
A7	RSA0012	AM LOOP ANTENNA	[M]
A7-1	RMN0244	ANTENNA HOLDER	[M]
A8	RQCB0169	SERVICENTER LIST	[M] (E/EB/EG/GC/GN)
A9	RQCA0537	QUICK SET UP GUIDE	[M] (EB)
A10	SJP9009	ANTENNA PLUG ADAPTER	[M] (EB)
A11⚠	SJP5213-2	AC PLUG ADAPTER	[M] (GC)
		JIG/TOOL(S)	
SA1	RFKX0002	GREASE	[M]

NOTE: The "<IA>, <IB>, <IC>, <ID>, <IE>, <IF>" marks in Remarks indicate language of instruction manual.

<IA>: Spanish, Swedish, French
<IB>: English
<IC>: German, Italian, French
<ID>: Dutch, Danish
<IE>: Russin, Polish, Czeco
<IF>: English, China, Arabic

■ Cabinet Parts Location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CN713
CN712
CN715
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JK501
CP715
W901A
CN722
CN721
JK551
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CP801
CP102B
CP203
JK201
CP201
CP101B
JK204
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CN102B
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W902A
W903A
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CP103B
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(EG/EP)areas.
CN501B
CN701 ~CN709
CN714~CN720
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(GC)area only.
CN905
JK902
JK901
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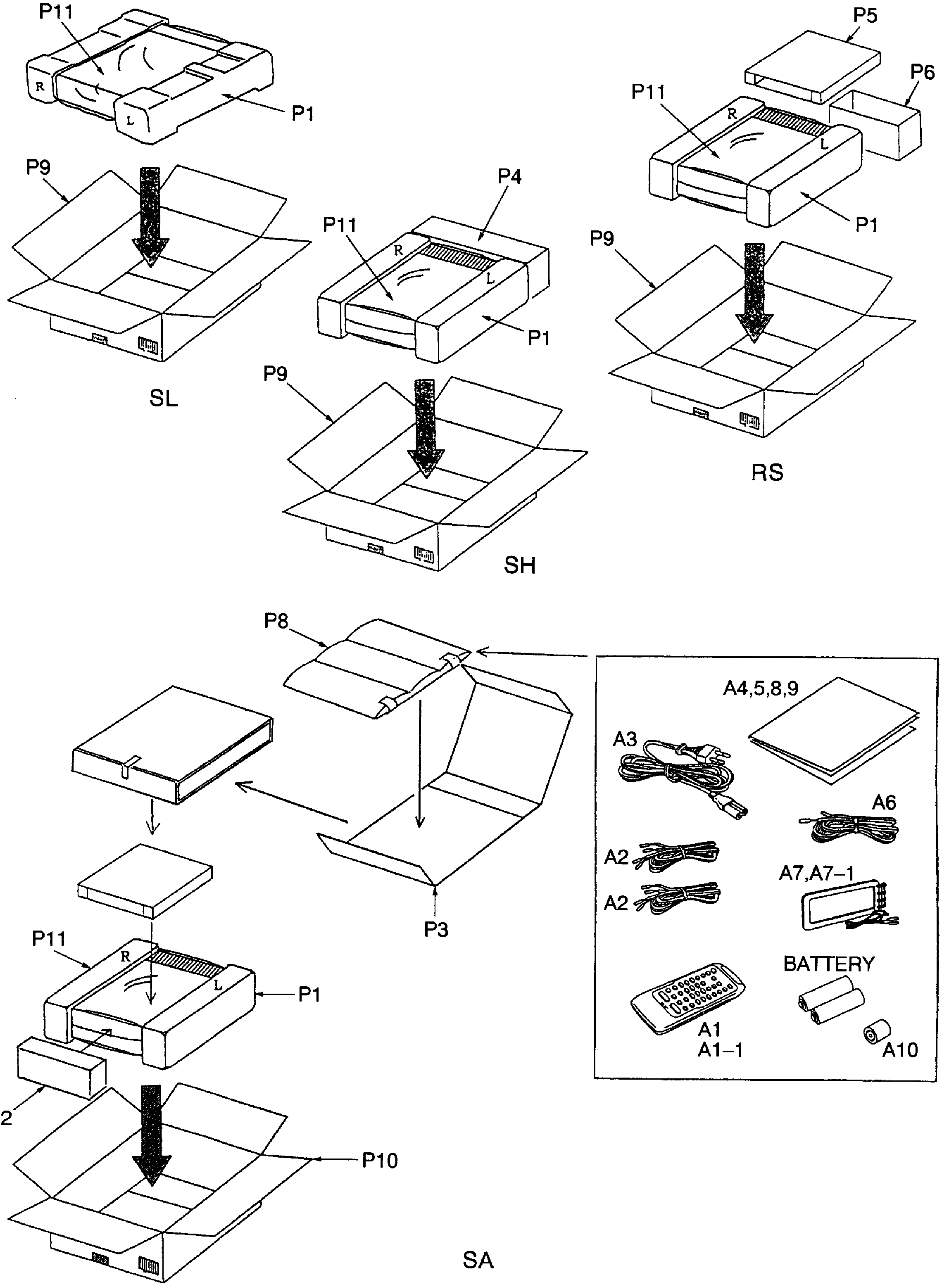
(GC)area only.

■ Packaging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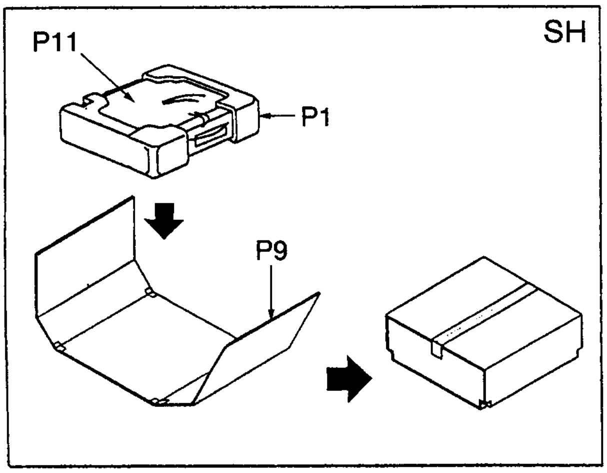
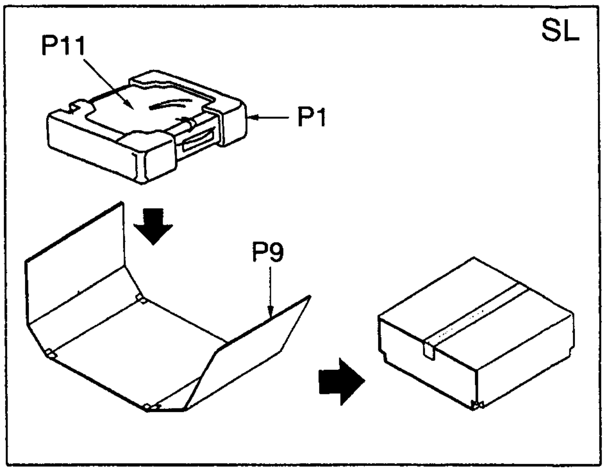
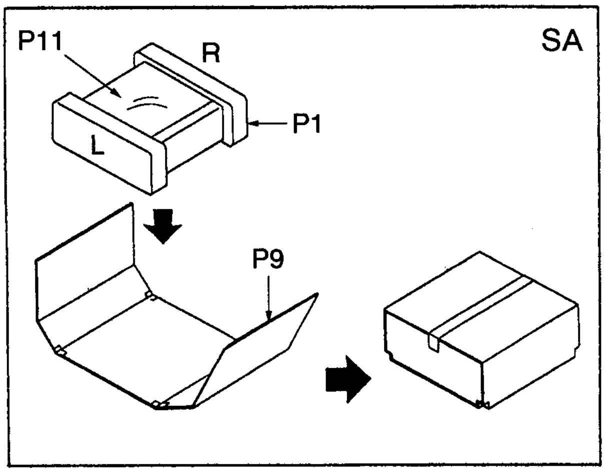
SA

For (E),(EB),(EG) Area



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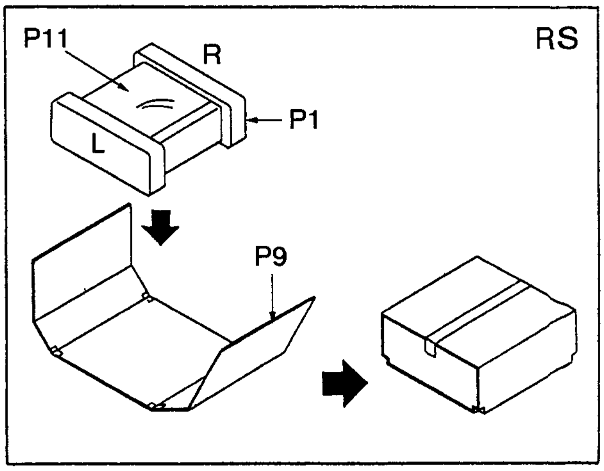
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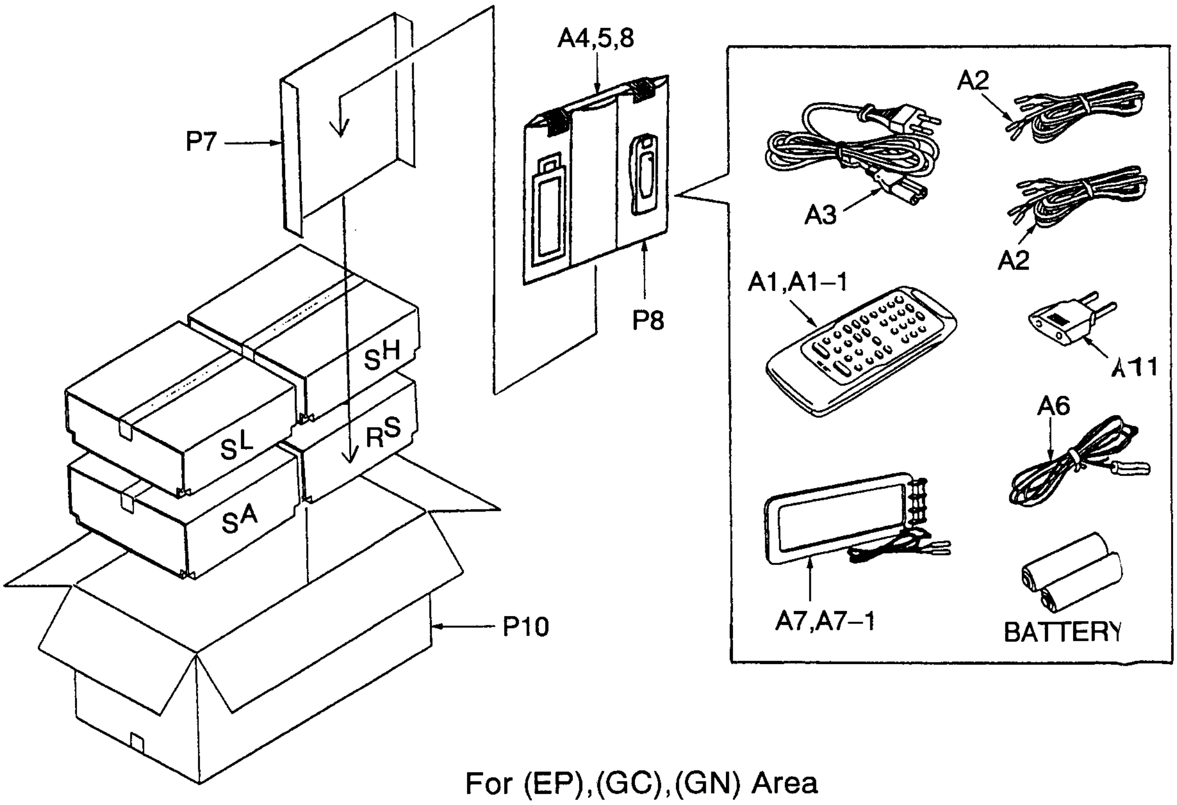
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BATTERY

For (EP),(GC),(GN) Area

ORDER NO. AD9703029C8

Service Manual

Stereo Cassette Deck

Cassette Deck

RS-EH60

[illegible]

Colour

(K) .... Black

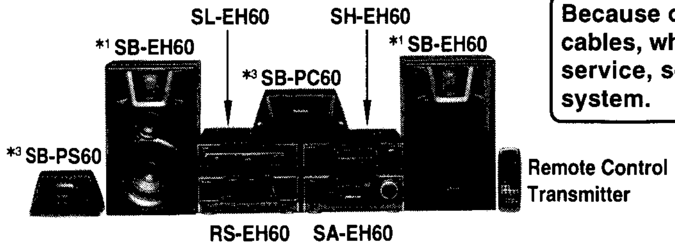
Area

(E) / (EP) .... Europe, Russia, Asia, Latin America, Middle East, Africa and Oceania.

DOLBY B NR

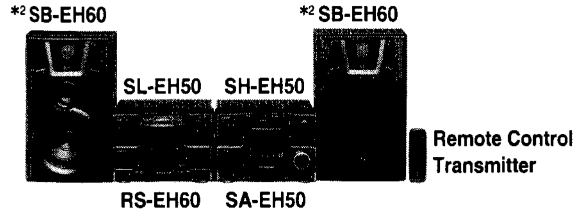
Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

System: SC-EH60

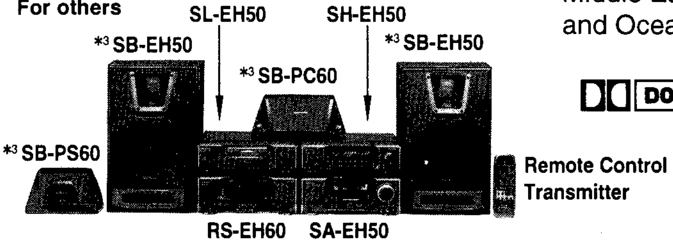


System: SC-EH50

For Europe and Russia



For others



AR-2 MECHANISM SERIES

Specifications

Deck system :	Stereo cassette deck
Track system :	4 track, 2 channels
Recording system :	AC bias
Bias frequency ;	100 kHz
Erasing system :	AC erase
Heads :	
DECK 1 (Playback head) ;	Permalloy head
DECK 2 (Recording/Playback head) ;	Permalloy head
(Erasing head) ;	Double gap ferrite head
Motors :	
DECK 1, 2 Capstan drive ;	DC servo motor
Tape speed :	4.8 cm/sec.
Wow and flutter :	0.16 % (WRMS)
Fast forward and rewind times :	Approx. 110 seconds with C-60 cassette tape

Frequency response (Dolby NR off) :	
TYPE I (NORMAL) ;	20 Hz–16 kHz (DIN)
TYPE II (HIGH) ;	20 Hz–16 kHz (DIN)
TYPE IV (METAL) ;	20 Hz–16 kHz (DIN)
S/N (Signal level = max recording level, TYPE II type tape) :	
NR off ;	56 dB (A weighted)
Dolby B NR on ;	66 dB (A weighted)
Input sensitivity and impedance :	
REC (IN) ;	400 mV/23 kohm
Output voltage and impedance :	
PLAY (OUT) ;	280 mV/360 ohm
Dimensions :	287 (W)/118.5 (H)/277 (D) mm
Weight :	2.0 kg

Notes : Specifications are subject to change without notice.
Weight and dimensions are approximate.

System/SC-EH60:

For Europe and Russia

Sound processor : SH-EH60, Tuner/Amplifier : SA-EH60, Compact disc changer : SL-EH60, Cassette deck : RS-EH60,
Front speakers : *1 SB-EH60, Center speaker : *2 SB-PC60, Surround speakers : *2 SB-PS60

For others

Sound processor : SH-EH60, Tuner/Amplifier : SA-EH60, Compact disc changer : SL-EH60, Cassette deck : RS-EH60,
Front speakers : *2 SB-EH60, Center speaker : *2 SB-PC60, Surround speakers : *2 SB-PS60

System/SC-EH50:

For Europe and Russia

Sound processor : SH-EH50, Tuner/Amplifier : SA-EH50, Compact disc player : SL-EH50, Cassette deck : RS-EH60,
Front speakers : *1 SB-EH60

For others

Sound processor : SH-EH50, Tuner/Amplifier : SA-EH50, Compact disc player : SL-EH50, Cassette deck : RS-EH60,
Front speakers : *2 SB-EH50, Center speaker : *2 SB-PC60, Surround speakers : *2 SB-PS60

Notes: ∗1 ...For Europe and Russia : Made in PAES For others : Made in MESA
∗2 ...Made in PAES, ∗3 ...Made in MESA

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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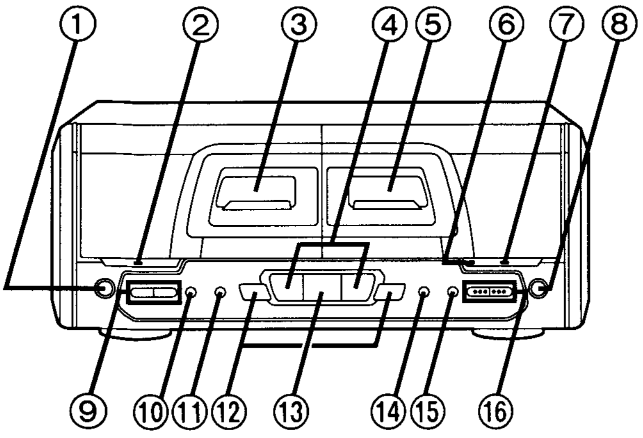
NOTE:
Refer to the service manual for Model No. SA-EH60 (ORDER No. AD9703048C8) or SA-EH50 (ORDER No. AD9703053C8) for information on "Accessories", "Connections" "Installation" and "Packaging".

■ Location of Controls



① **Deck 1 cassette holder open button (▲ OPEN)**
② **Deck 1 indicator (DECK 1)**
③ **Deck 1 cassette holder**
④ **Playback buttons and indicators (◁,▷)**
⑤ **Deck 2 cassette holder**
⑥ **Record pause indicator (REC PAUSE)**
⑦ **Deck 2 indicator (DECK 2)**
⑧ **Deck 2 cassette holder open button (▲ OPEN)**
⑨ **Counter reset, display buttons (COUNTER, RESET, DISPLAY)**
⑩ **Deck 1/deck 2 select button (DECK 1/2)**
⑪ **Reverse mode select button (REV MODE)**
⑫ **Fast forward/rewind buttons (◀◀,▶▶)**
⑬ **Stop button (■)**
⑭ **Dolby noise reduction button (DOLBY NR)**
⑮ **Record pause button (● REC PAUSE)**
⑯ **Tape edit buttons (TAPE EDIT, NOR, HIGH)**

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

■ Operation Checks and Main Component Replacement Procedures

NOTE

1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**
4. **Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.**

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•Checking Procedure for each P.C.B. Page.

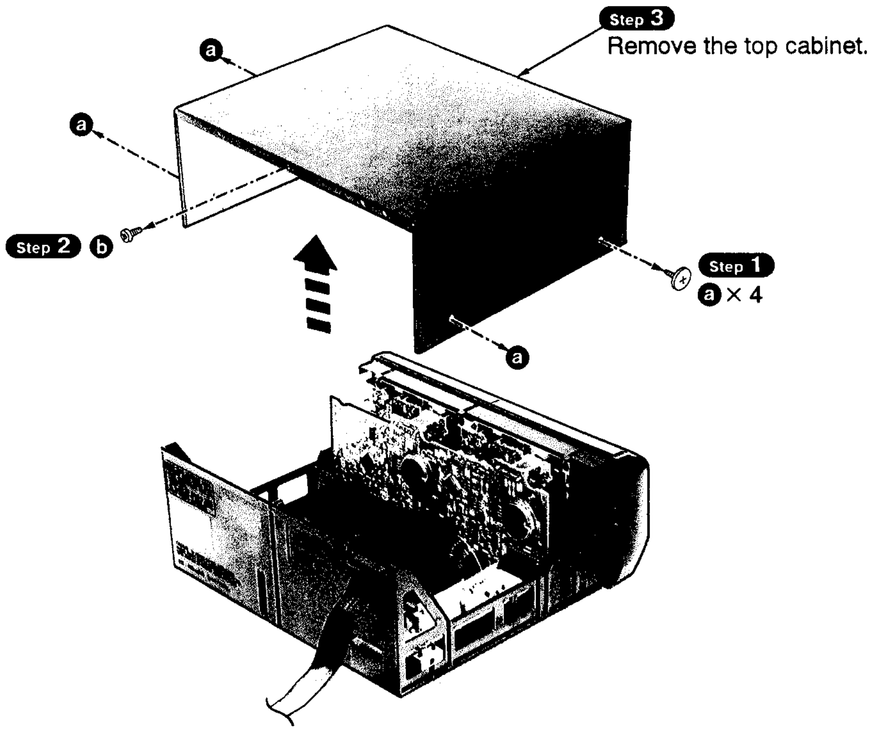
1. Checking for the main P.C.B. and power supply P.C.B.. •••••• 3,4.
2. Checking for the operation P.C.B.. •••••• 5,6.

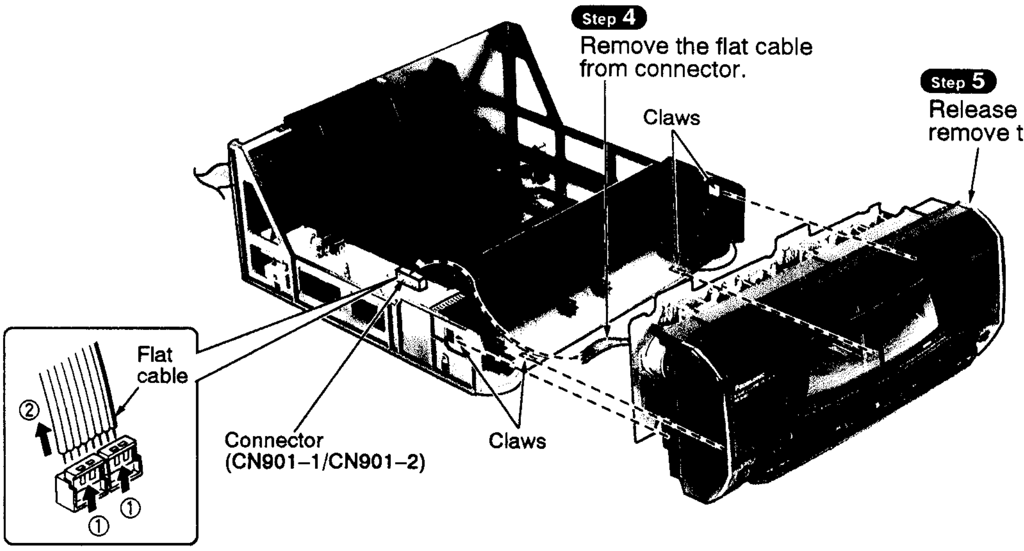
•Main Component Replacement Procedures

1. Replacement for the cassette lid ass'y. •••••• 7.
2. Replacement for the cassette holder. •••••• 7.
3. Replacement for the motor ass'y, capstan belt and winding belt. •••••• 8~11.
4. Replacement for the plunger ass'y and the parts mounted on mechanism P.C.B.. •••••• 11,12.
5. Replacement for the head block and pinch roller ass'y. •••••• 12.

■ Checking Procedure for each P.C.B.

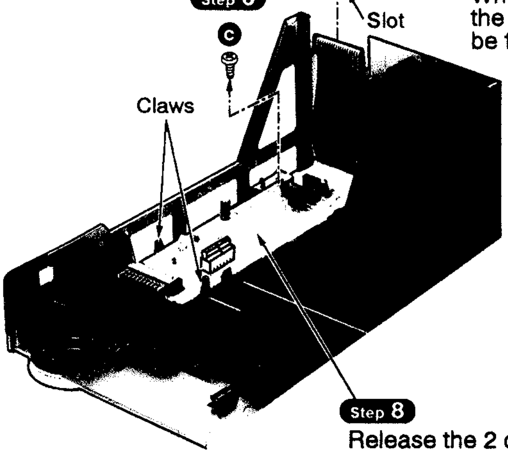
1. Checking for the main P.C.B. and power supply P.C.B.




Claws
Flat cable
②
①
①
Connector (CN901-1/CN901-2)
Claws

Step 4
Remove the flat cable from connector.

Step 5
Release the 4 claws, and then remove the front panel ass'y.

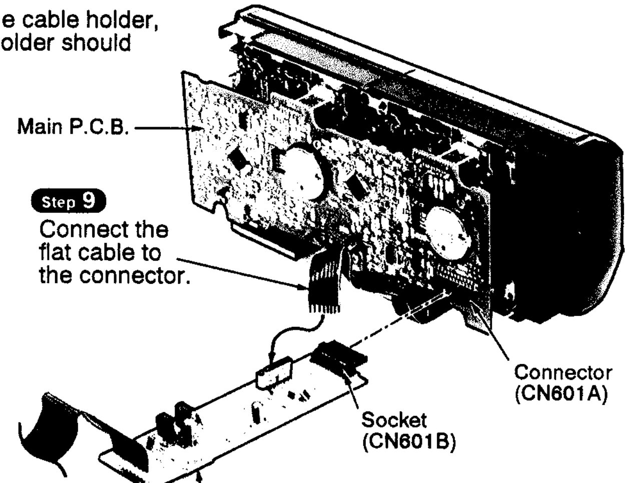


Step 6

Step 7
Remove the cable holder.

NOTE
When installing the cable holder, the slot of cable holder should be faced inward.

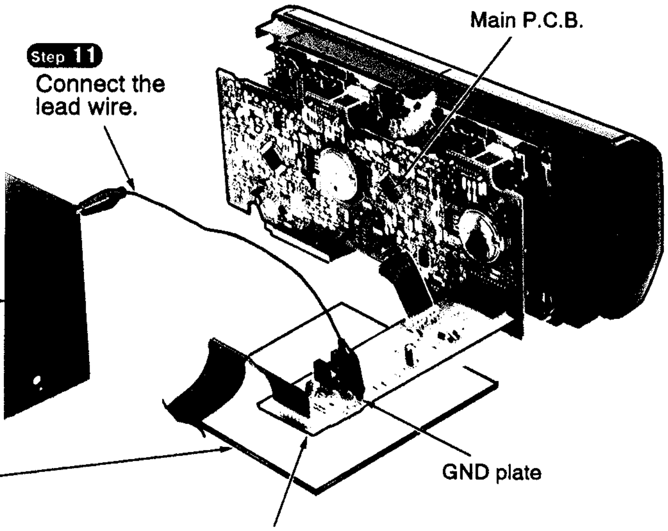
Step 8
Release the 2 claws, and then remove the power supply P.C.B..


Main P.C.B.
Connector (CN601A)
Socket (CN601B)
Power supply P.C.B.

Step 9
Connect the flat cable to the connector.

Step 10
Connect the socket (CN601B) to the connector (CN601A).

- **Check the main P.C.B. and power supply P.C.B. as shown below.**

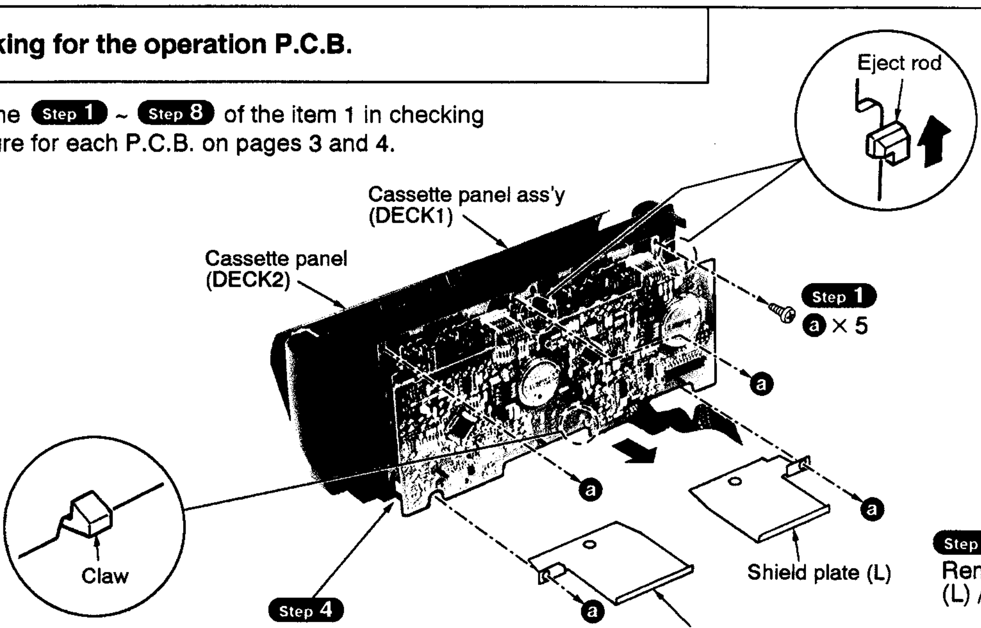

Main P.C.B.
Top cabinet
GND plate
Power supply P.C.B.

Step 11
Connect the lead wire.

NOTE
Place the power supply P.C.B. on the insulation material not to short–circuit the solder side of power supply P.C.B..

2. Checking for the operation P.C.B.

- Follow the **Step 1** ~ **Step 8** of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.

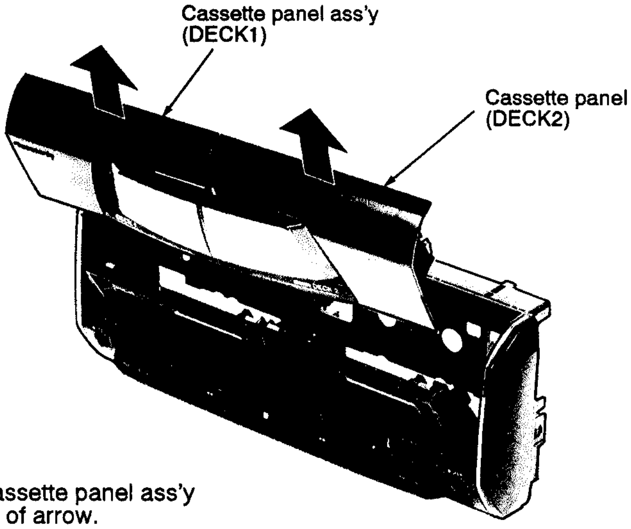

Eject rod
Cassette panel ass'y (DECK1)
Cassette panel (DECK2)
a × 5
a
a
a
a
Claw
Shield plate (L)
Shield plate (R)

Step 3
Press the eject rod in the direction of arrow, and then open the cassette panel ass'y.

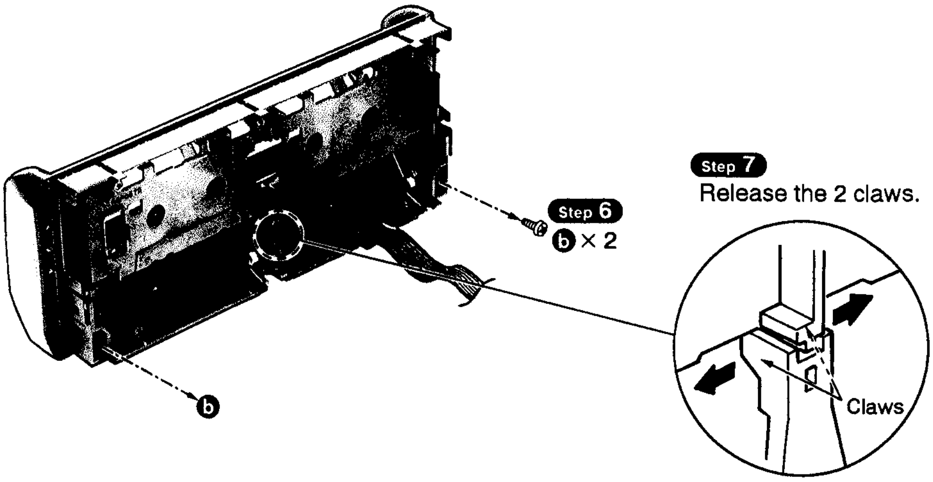
Step 1
ⓐ × 5

Step 2
Remove the shield plate (L) / (R).

Step 4
Release the claw, and then remove the mechanism unit.

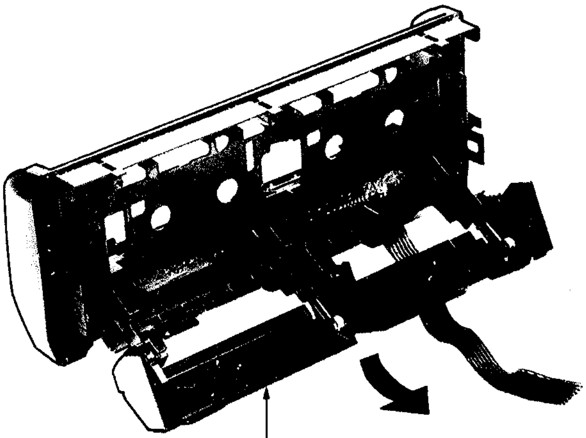

Cassette panel ass'y (DECK1)
Cassette panel (DECK2)

Step 5
Remove the cassette panel ass'y in the direction of arrow.

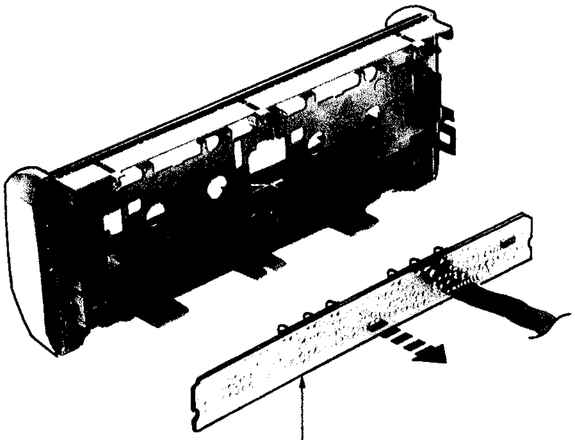


Step 6
ⓑ × 2

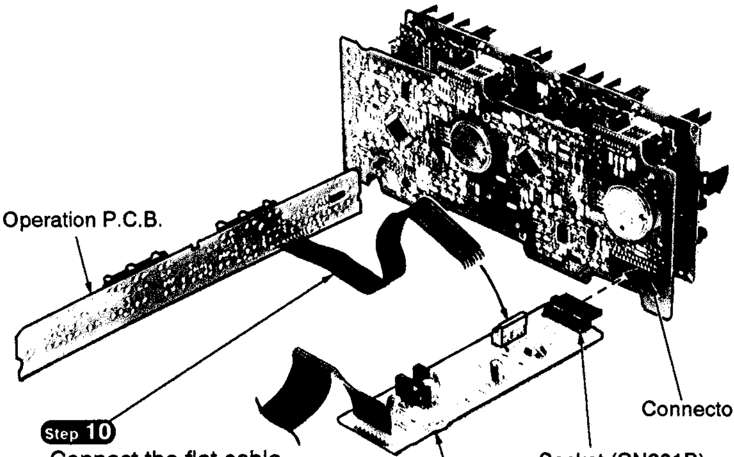
Step 7
Release the 2 claws.



Step 8
Remove the deck mecha frame in the direction of arrow.



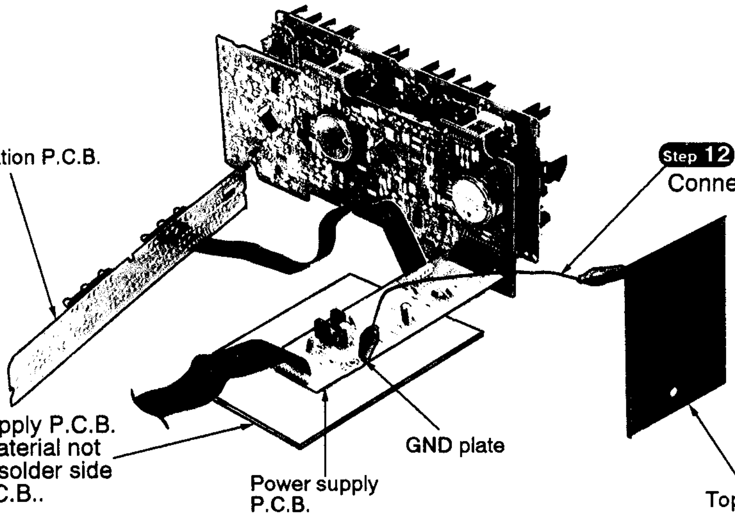
Step 9
Remove the operation P.C.B..


Operation P.C.B.
Connector (CN601A)
Socket (CN601B)
Power supply P.C.B.

Step 10
Connect the flat cable to the connector.

Step 11
Connect the socket (CN601B) to the connector (CN601A).

- **Check the operation P.C.B. as shown below.**


Operation P.C.B.
GND plate
Power supply P.C.B.
Top cabinet

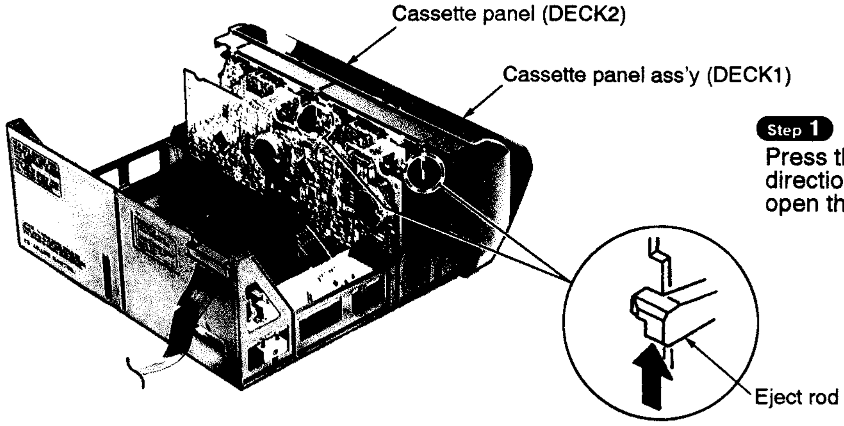
Step 12
Connect the lead wire.

NOTE
Place the power supply P.C.B. on the insulation material not to short–circuit the solder side of power supply P.C.B..

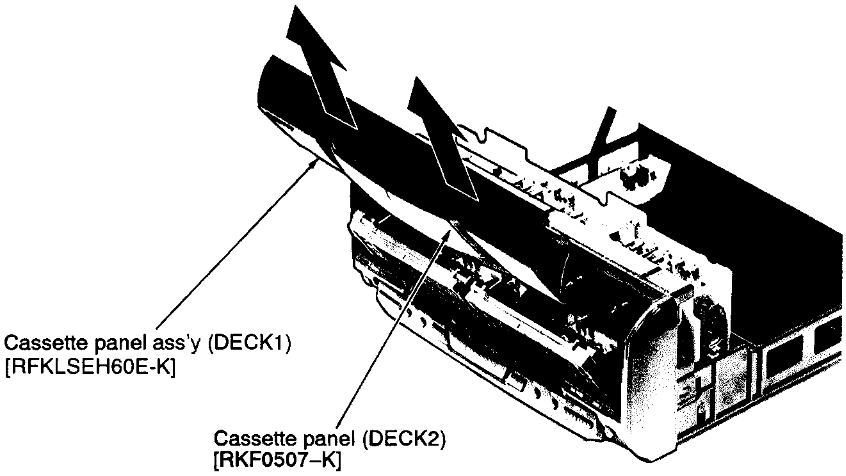
■ Main Component Replacement procedures

1. Replacement for the cassette panel ass'y

- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.


Cassette panel (DECK2)
Cassette panel ass'y (DECK1)
Eject rod

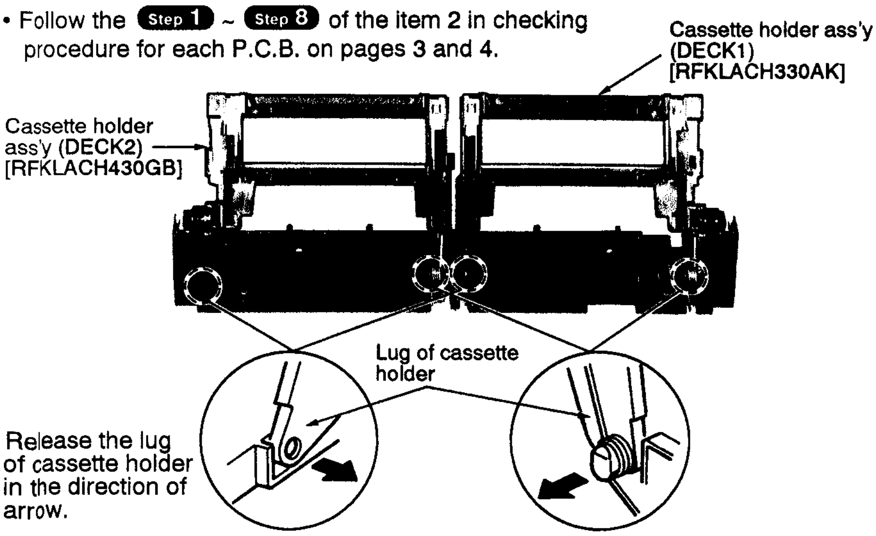
Step 1
Press the eject rod in the direction of arrow, and then open the cassette panel ass'y.


Cassette panel ass'y (DECK1)
[RFKLSEH60E-K]
Cassette panel (DECK2)
[RKF0507–K]

Step 2
Remove the cassette panel ass'y in the direction of arrow.

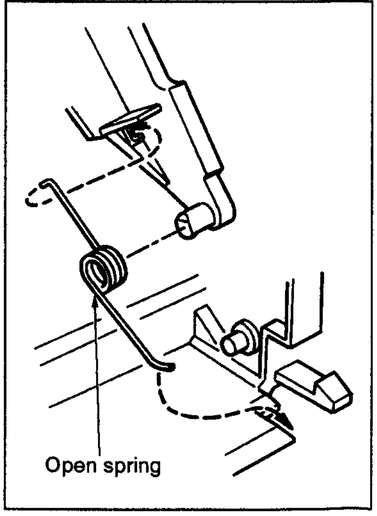
2. Replacement for the cassette holder

- Follow the Step 1 ~ Step 5 of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the Step 1 ~ Step 8 of the item 2 in checking procedure for each P.C.B. on pages 3 and 4.


Cassette holder ass'y (DECK1)
[RFKLACH330AK]
Cassette holder ass'y (DECK2)
[RFKLACH430GB]
Lug of cassette holder

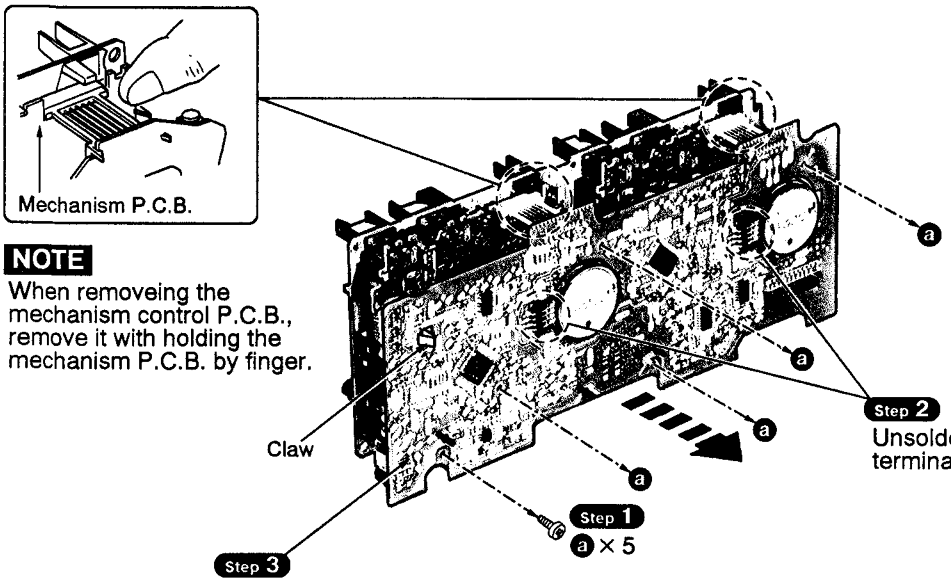
- Release the lug of cassette holder in the direction of arrow.

■ Open spring installation


Open spring

3. Replacement for the motor ass'y, capstan belt and winding belt

- Follow the **Step 1** ~ **Step 5** of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the **Step 1** ~ **Step 4** of the item 2 in checking procedure for each P.C.B. on page 5.



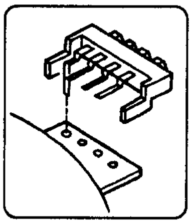
NOTE
When removeing the mechanism control P.C.B., remove it with holding the mechanism P.C.B. by finger.

Step 1
ⓐ × 5

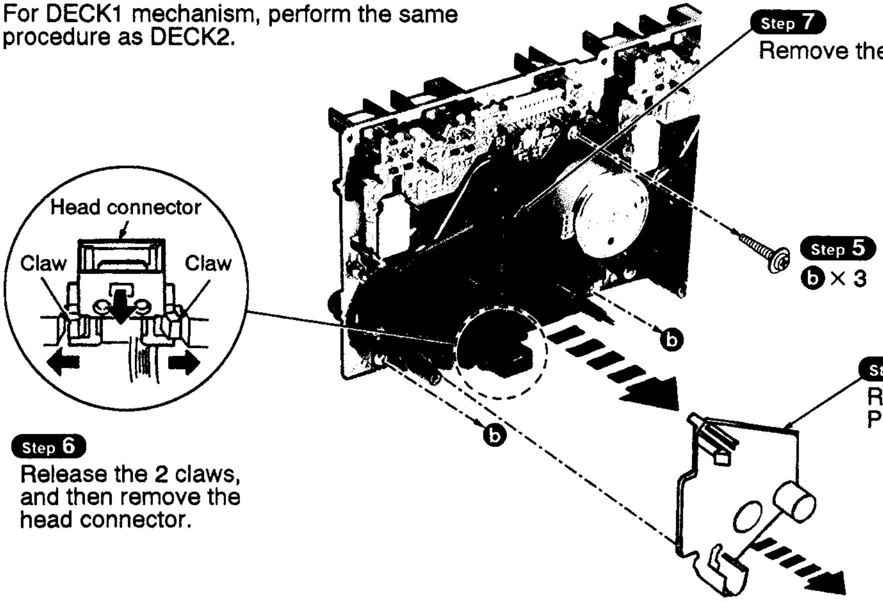
Step 2
Unsolder the terminals.

Step 3
Release the claw, and then remove the main P.C.B..

NOTE
Handle the connector with care so that the shape of terminals different from others.



NOTE
The illustration below shows DECK2 mechanism. For DECK1 mechanism, perform the same procedure as DECK2.

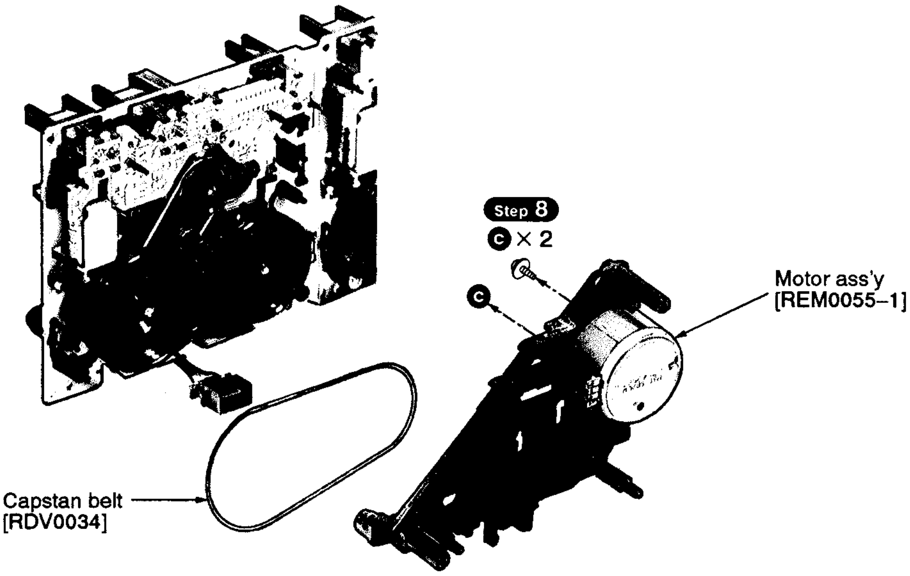


Step 7
Remove the sub chassis.

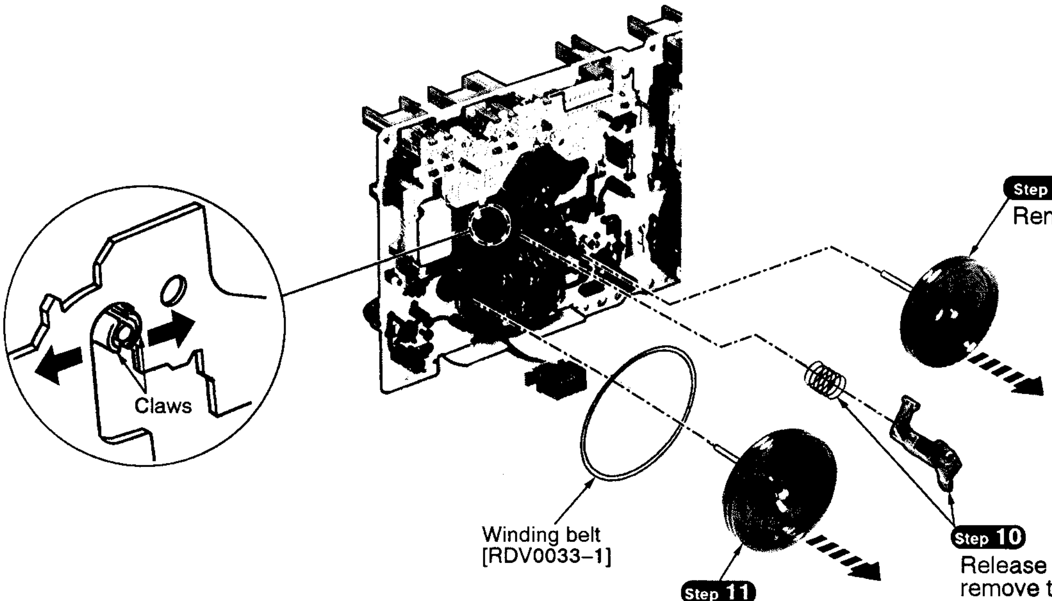
Step 5
ⓑ × 3

Step 4
Remove the P.C.B. support.

Step 6
Release the 2 claws, and then remove the head connector.


Motor ass'y
[REM0055-1]
Capstan belt
[RDV0034]
C

Step 8
C × 2

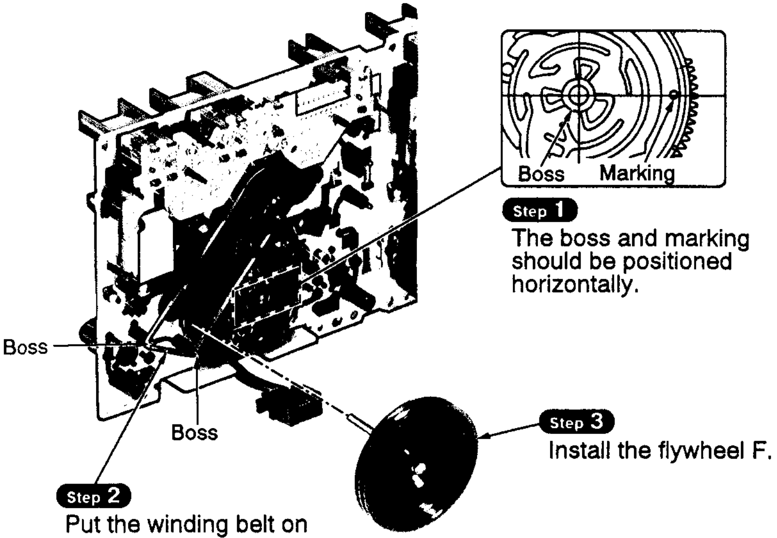

Claws
Winding belt
[RDV0033-1]

Step 9
Remove the flywheel R.

Step 10
Release the 2 calws, and then remove the winding belt and spring.

Step 11
Remove the flywheel F.

Installing the belt

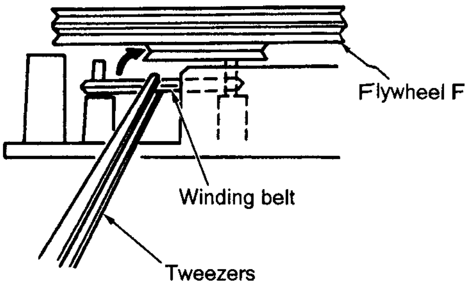

Boss
Marking
Boss
Boss

Step 1
The boss and marking should be positioned horizontally.

Step 2
Put the winding belt on the pulley temporarily.

Step 3
Install the flywheel F.

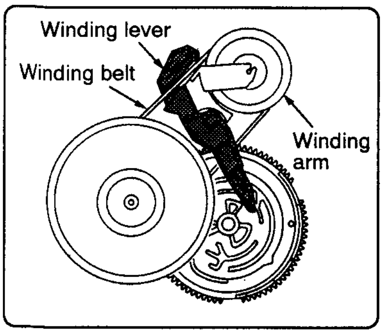
Step 4
Put the winding belt on the flywheel F.

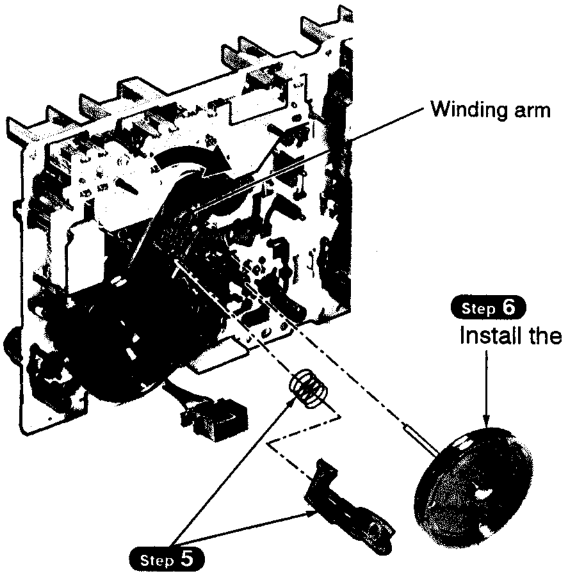

Flywheel F
Winding belt
Tweezers

NOTE
Take care not stick the grease on the belt.

NOTE

The winding lever should be positioned as shown below.


Winding lever
Winding belt
Winding arm


Winding arm

Step 6

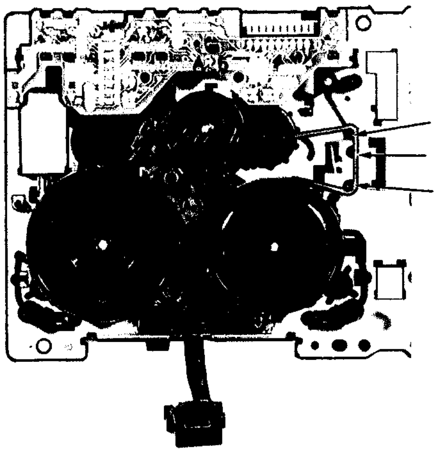
Install the flywheel R.

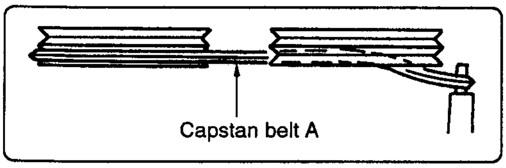
Step 5

Install the winding lever and spring while pressing the winding arm in the direction of arrow.
(The winding lever must be inserted completly and latched with claws.)

Step 7

Put the capstan belt A temporarily as shown below.


Boss
Capstan belt A
Boss

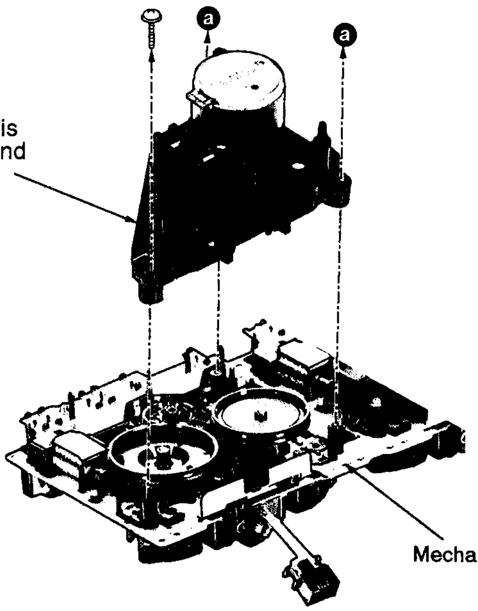

Capstan belt A

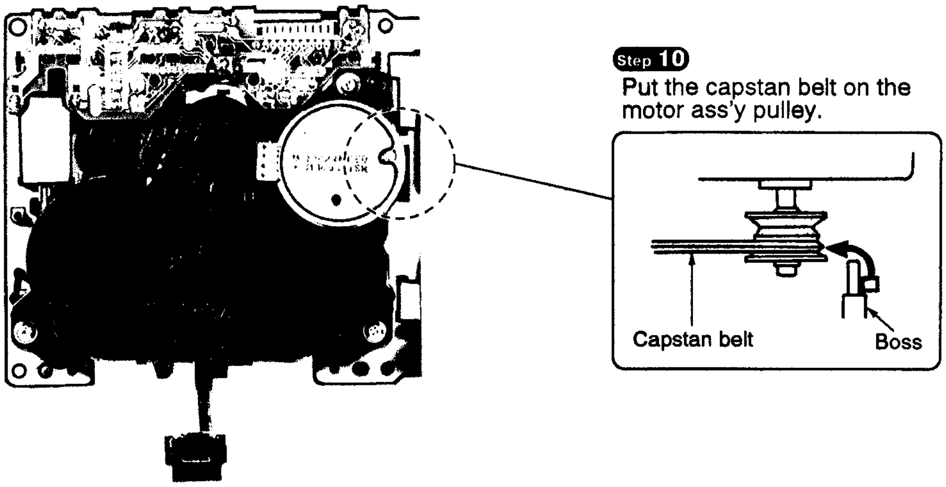
(Side view)

Step 9 ⓐ × 3

Step 8

Install the sub chassis to the mechanism, and then tighten screws.


a
a
Mechanism



Step 10 Put the capstan belt on the motor ass'y pulley.

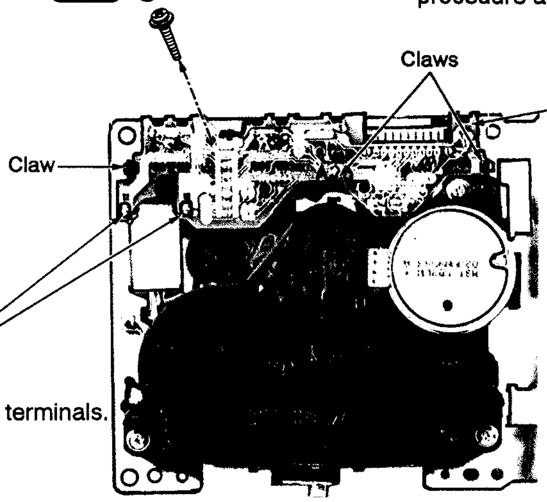
4. Replacement for the plunger ass'y and the parts mounted on mechanism P.C.B.

- Follow the **Step 1** ~ **Step 5** of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the **Step 1** ~ **Step 4** of the item 2 in checking procedure for each P.C.B. on page 5.
- Follow the **Step 1** ~ **Step 3** of the item 3 in main component replacement procedures on page 8.

NOTE

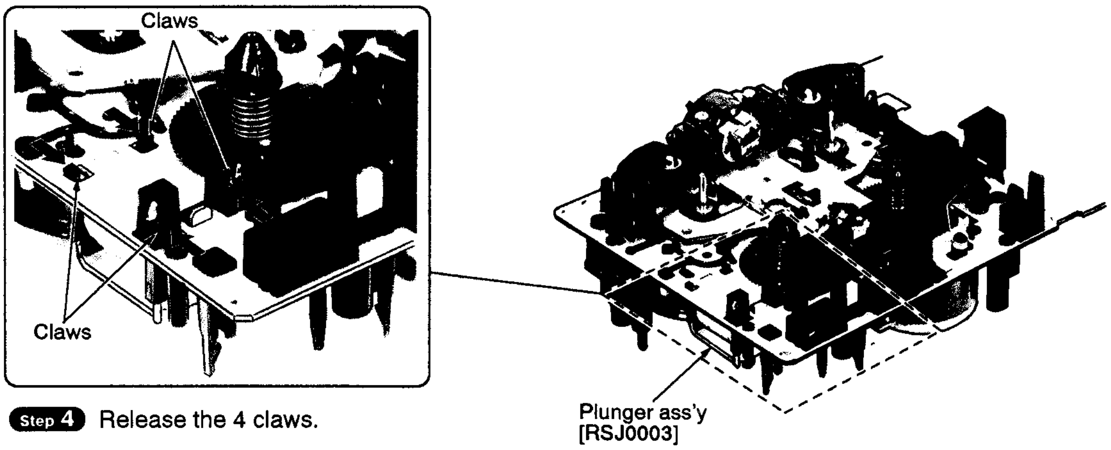
The illustration below shows DECK2 mechanism. For DECK1 mechanism, perform the same procedure as DECK2.

Step 1 ⓐ

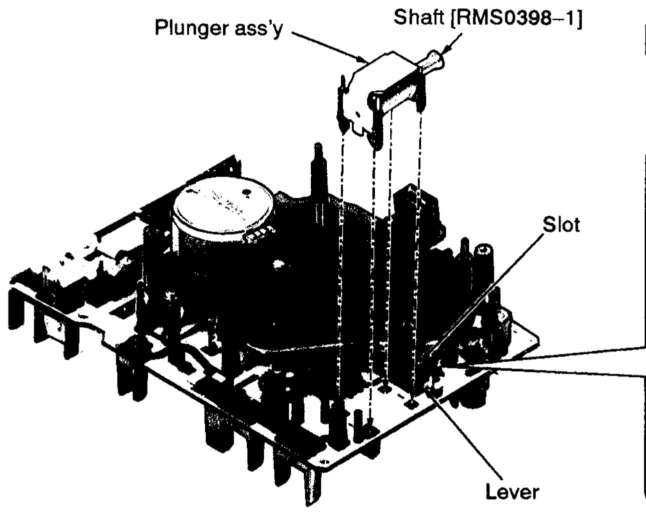


Step 3 Release the 3 claws, and then remove the mechanism P.C.B..

Step 2 Unsolder the terminals.



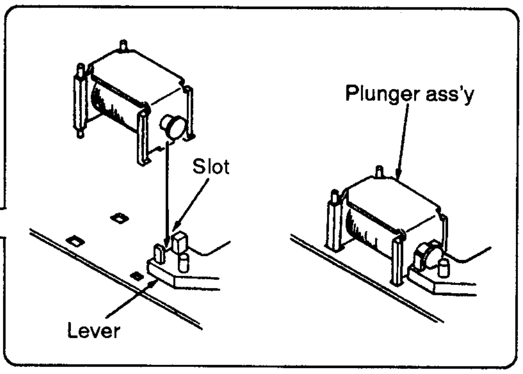
Step 4 Release the 4 claws.


Plunger ass'y
Shaft [RMS0398-1]
Slot
Lever

NOTE

Notice for installing the plunger ass'y

- The shaft of plunger ass'y should be aligned with the slot of lever.

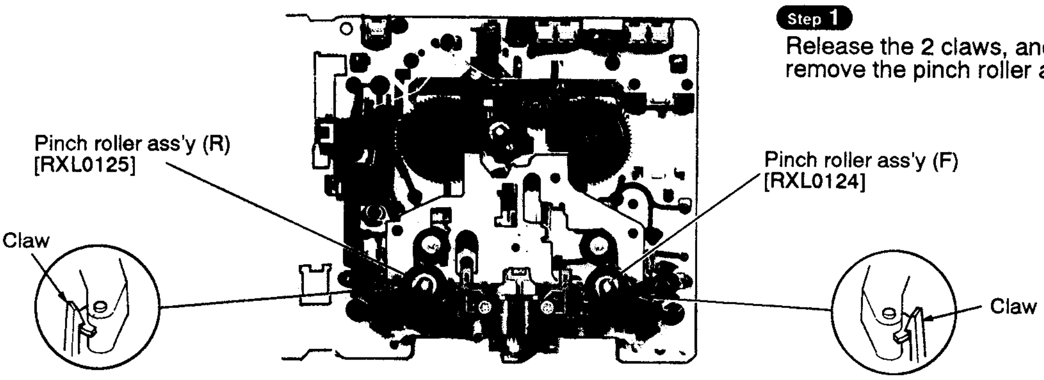

Plunger ass'y
Slot
Lever

5. Replacement for the head block and pinch roller ass'y

- Follow the Step 1 ~ Step 5 of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the Step 1 ~ Step 4 of the item 2 in checking procedure for each P.C.B. on page 5.
- Follow the Step 1 ~ Step 3 of the item 3 in main component replacement procedures on page 8.

NOTE

The illustration below shows DECK2 mechanism. For DECK1 mechanism, perform the same procedure as DECK2.

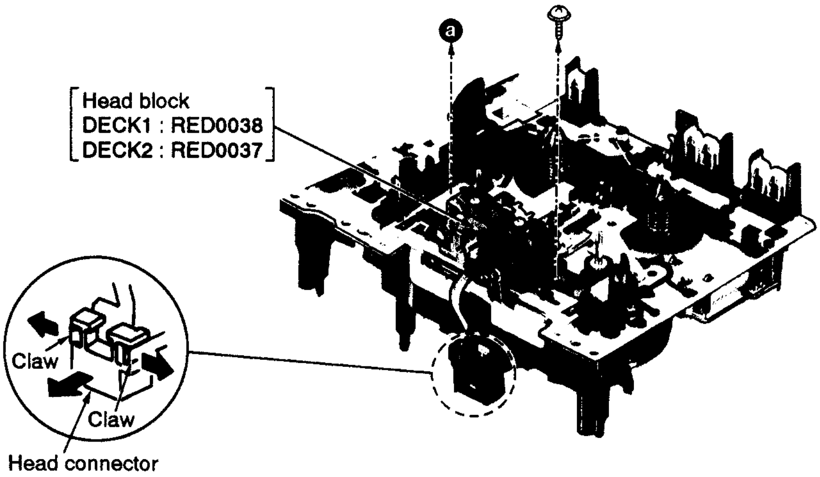

Pinch roller ass'y (R)
[RXL0125]
Claw
Pinch roller ass'y (F)
[RXL0124]
Claw

Step 1

Release the 2 claws, and then remove the pinch roller ass'y (R),(F).

Step 2

ⓐ × 2


ⓐ
Head block
DECK1 : RED0038
DECK2 : RED0037
Claw
Claw
Head connector

Step 3

Release the 2 claws, and then remove the head connector.

■ Service Mode Function of Cassette Mechanism

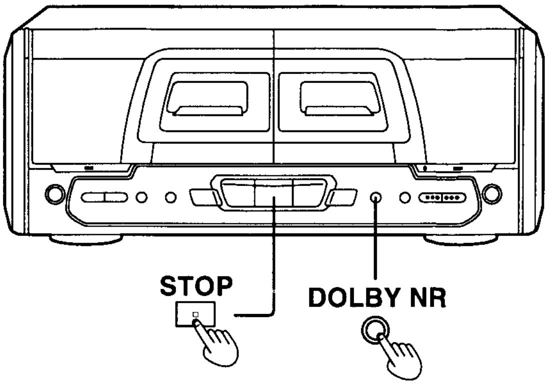
This unit is equipped with a service mode function of cassette mechanism using the LED indicators [R. PLAY (◀), F. PLAY (▶)] and cassette holder illuminations [DECK 1, DECK 2]. Use this function during maintenance to check faults of the items below.

● Cassette tapes to be prepared

Metal tape:	Recorded music tape with only one erase-prevention tab intact (use middle portion of tape).
Normal tape: CrO2 tape:	Recorded music tape with both erase-prevention tabs intact (use middle portion of tape).

● Selecting Service Mode

1. Turn on the power to the unit. (If RS-EH60 unit is removed from system, turn it on according to the procedure on page 15.)
2. Check that no tape is inserted in the cassette deck. Press the DOLBY NR button for about 2 seconds, and keep pressing it, also press the STOP button for about 2 seconds. (Service mode cannot be selected with a tape inserted in the cassette deck.)
3. The LED indicator for REC PAUSE flashes, the service mode has been activated.



● Deck 1 Mechanism Check

Use the Deck 1/2 select button to change the flashing Deck 2 indicator to Deck 1. (No change required if Deck 1 indicator already flashing.)

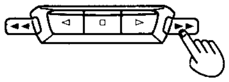
DECK 1/2

→ Open the Deck 1 cassette holder. (OPEN button)

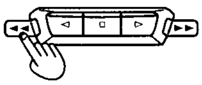
▲ OPEN

→ Insert a CrO2 tape into the Deck 1 and close the cassette holder.

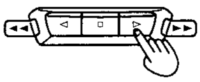
→ Press the TPS ▶▶ button. (Tape fast forwards for about 2 seconds then stops.)



→ Press the ◀◀ TPS button. (Tape rewinds for about 2 seconds then stops.)

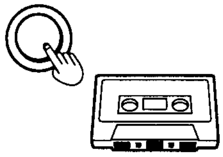


→ Press the PLAY button. (After TPS operation and check, the tape stops.)



→ Open the Deck 1 cassette holder and replace the tape with a normal tape. (OPEN button)

▲ OPEN

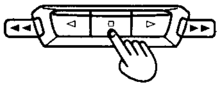


→ Close the Deck 1 cassette holder.

→ Press the REC/PAUSE button. (No record operation.)

●REC PAUSE

→ Press the STOP button. Fault items 1 to 7 can be checked as the four LED indicators turn on or off. (Refer to Table 1.) Each time the STOP button is pressed, the fault items are displayed in sequence.



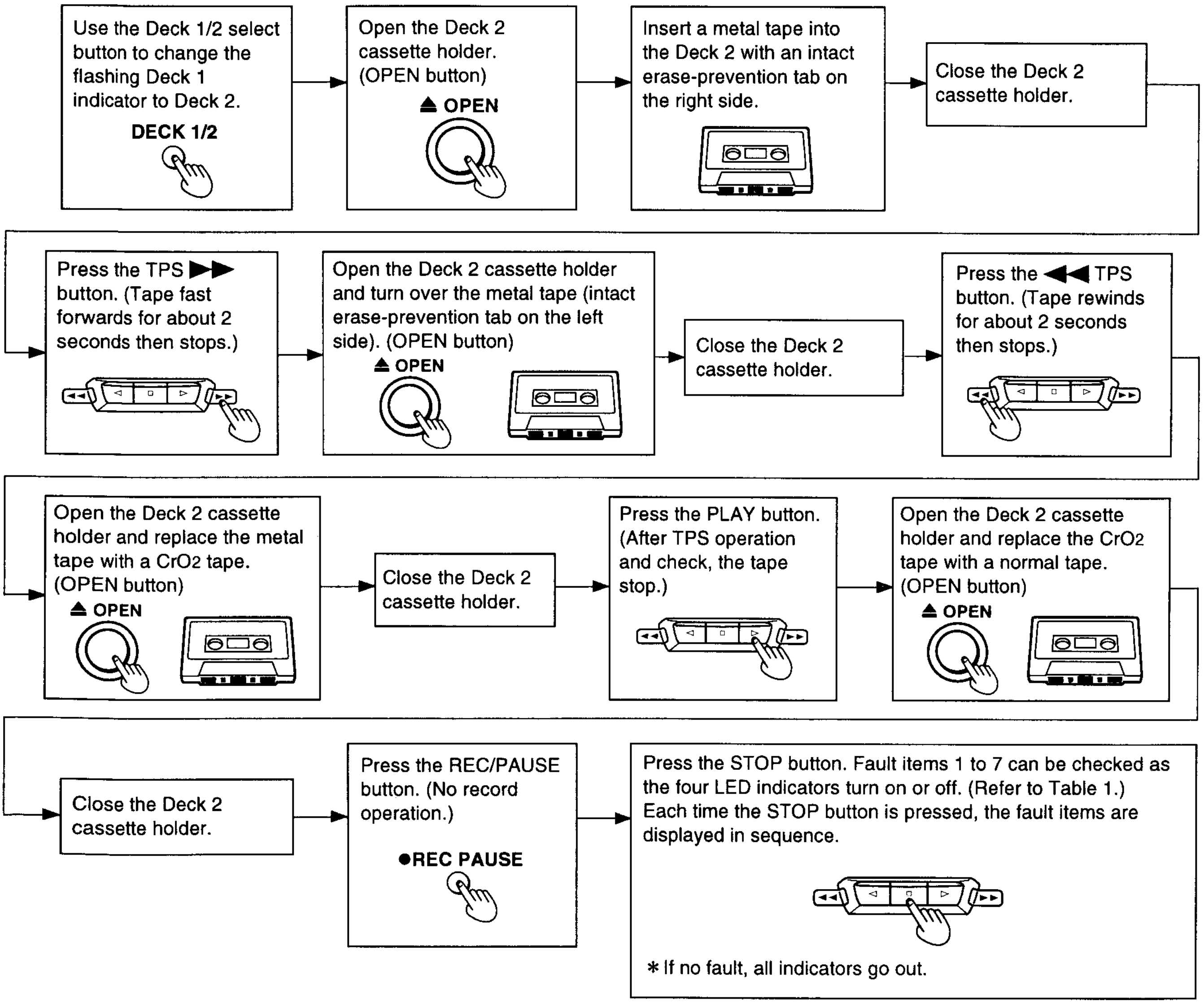
∗ If no fault, all indicators go out.

Table 1: Service Mode Diagnostic Items

No.	LED indicator and illumination status (on/off)				Fault location
	◀	DECK 1	DECK 2	▶	
1.	—	—	●	—	MODE detect switch
2.	—	●	—	—	REC prevention switch
3.	—	●	●	—	Half detect switch
4.	—	●	—	●	CrO2 tape detect switch
5.	—	●	●	●	Metal tape detect switch
6.	●	—	—	—	Reel pulse detect system (Hall IC, etc.)
7.	●	—	●	—	TPS operation

Notes:
"●": ON
"—": OFF
∗ If no fault, all indicators go out.

• Deck 2 Mechanism Check



Use the Deck 1/2 select button to change the flashing Deck 1 indicator to Deck 2.

Open the Deck 2 cassette holder. (OPEN button)

Insert a metal tape into the Deck 2 with an intact erase-prevention tab on the right side.

Close the Deck 2 cassette holder.

Press the TPS ▶▶ button. (Tape fast forwards for about 2 seconds then stops.)

Open the Deck 2 cassette holder and turn over the metal tape (intact erase-prevention tab on the left side). (OPEN button)

Close the Deck 2 cassette holder.

Press the ◀◀ TPS button. (Tape rewinds for about 2 seconds then stops.)

Open the Deck 2 cassette holder and replace the metal tape with a CrO2 tape. (OPEN button)

Close the Deck 2 cassette holder.

Press the PLAY button. (After TPS operation and check, the tape stop.)

Open the Deck 2 cassette holder and replace the CrO2 tape with a normal tape. (OPEN button)

Close the Deck 2 cassette holder.

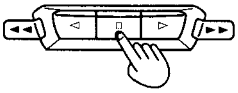
Press the REC/PAUSE button. (No record operation.)

Press the STOP button. Fault items 1 to 7 can be checked as the four LED indicators turn on or off. (Refer to Table 1.) Each time the STOP button is pressed, the fault items are displayed in sequence.

∗ If no fault, all indicators go out.

• Exiting Self-Check Mode

1. Press the STOP button for more than 6 seconds. (Diagnostic contents stored in memory for both Deck 1 and 2 are erased.)
2. Remove the cassette tape from the cassette holder.
3. Turn off the unit.



■ Measurements and Adjustments

This unit RS-EH60 is designed to operate on power supplied from the Tuner/Amplifier (SA-EH60 or SA-EH50) through CD changer (SL-EH60) or CD player (SL-EH50). When connecting the unit to other system components, do not connect to the Tuner/Amplifier (SA-EH60 or SA-EH50) directly.
Be sure to connect this unit through the CD changer (SL-EH60) or CD player (SL-EH50).
When operating the unit RS-EH60 alone for testing and servicing, without having power supplied from the Tuner/Amplifier (SA-EH60 or SA-EH50) and the CD changer (SL-EH60) or CD player (SL-EH50), use the following method.

• To Supply Power Source

1. At first short between J101 and J115 (Fig.1-**A**), next to short J12, J14 and J114 with each other (Fig.1-**B**).
2. Apply +10 V DC power to points between **A**(+10V) and **B**GND).

Note: When operated alone, this unit automatically enter the TEST mode, causing either the DECK 1 or DECK 2 indicators to blink.
In TEST mode, please make sure whether the Dolby B indication is on or off by the illumination of DECK 1 cassette holder is lighted on or off.
(DECK 1 illumination lighted on: Dolby ON, illumination Lighted off: Dolby OFF)

• To Input the Sync Signal

Connect an AF Oscillator (100Hz, 5Vrms)between CN601-10 pin and **B**(GND) as shown below.

• To Check Signals

Connect an Oscilloscope or a built-in amplifier speaker between line output for L-ch (**TP607**) and A.GND, and line out for R-ch (**TP608**) and A.GND and check if the signals are outputting from this unit.

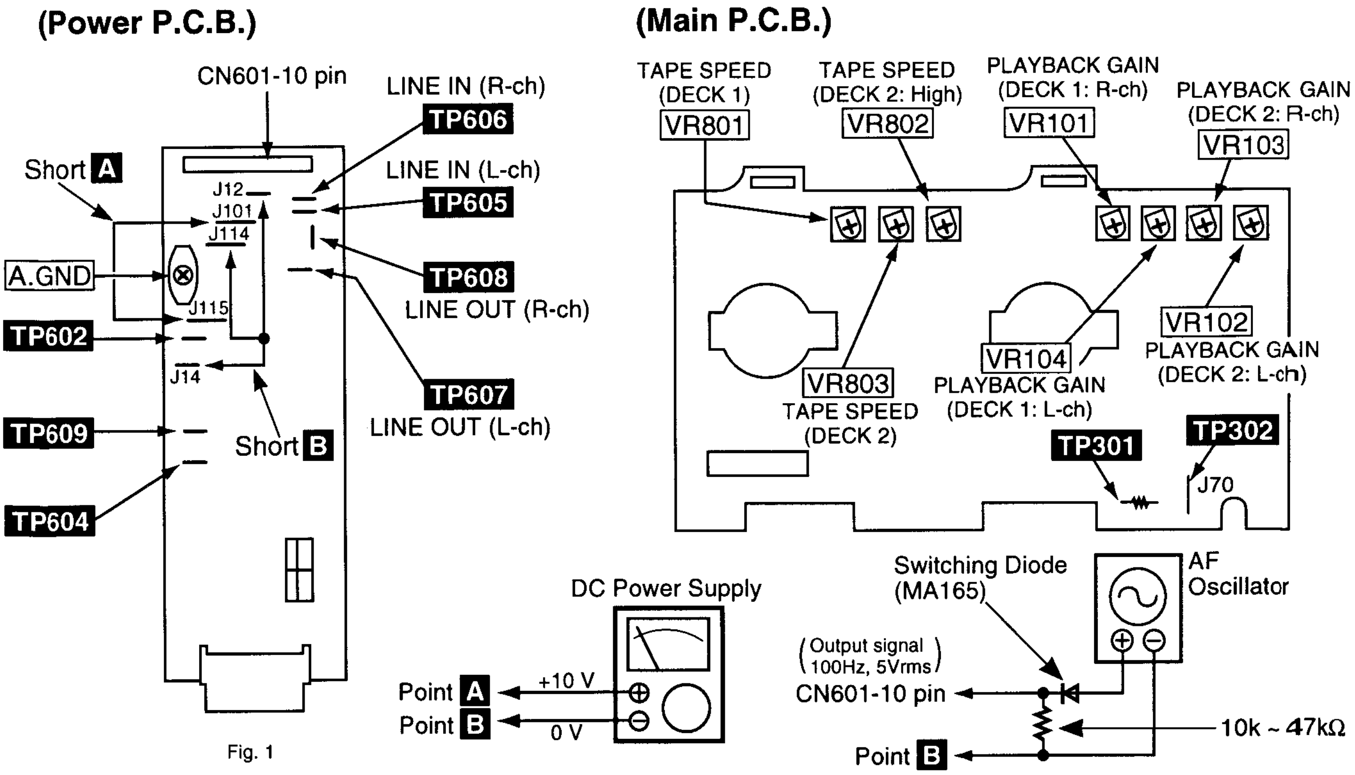

(Power P.C.B.)
CN601-10 pin
LINE IN (R-ch)
TP606
Short A
J12
J101
J114
LINE IN (L-ch)
TP605
A.GND
TP608
LINE OUT (R-ch)
TP602
J115
J14
TP607
LINE OUT (L-ch)
TP609
Short B
TP604
(Main P.C.B.)
TAPE SPEED (DECK 1)
VR801
TAPE SPEED (DECK 2: High)
VR802
PLAYBACK GAIN (DECK 1: R-ch)
VR101
PLAYBACK GAIN (DECK 2: R-ch)
VR103
VR102
PLAYBACK GAIN (DECK 2: L-ch)
VR104
PLAYBACK GAIN (DECK 1: L-ch)
VR803
TAPE SPEED (DECK 2)
TP301
TP302
J70
DC Power Supply
Point A
Point B
+10 V
0 V
Switching Diode (MA165)
AF Oscillator
(Output signal 100Hz, 5Vrms)
CN601-10 pin
10k ~ 47kΩ
Point B

Fig. 1

Measurement Condition
- Dolby NR switch: OFF
- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature: 20 ± 5°C (68 ± 9°F)

Measuring instrument
- DC Power Supply
- AF Ocsillator

Measurement Condition
- Head azimuth adjustment (8 kHz, -20 dB): QZZCFM
- Tape speed adjustment (3 kHz, -10 dB): QZZCWAT
- Playback gain adjustment (315 Hz, 0 dB): QZZCFM
- Recording/playback frequency response adjustment:

QZZCFM	(315 Hz/0 dB, 315Hz/-20dB, 12.5 kHz~63 Hz/-20 dB)
QZZCRA	(Normal blank tape)
QZZCRX	(CrO2 blank tape)
QZZCRZ	(Metal blank tape)

HEAD AZIMUTH ADJUSTMENT (DECK 1/2)

1. Connect the measuring instrument as shown in Fig. 3.
2. Replace azimuth screws for both forward and reverse direction after removing the screw-locking bond left on the head base.
   Fine adjustment of azimuth can not be performed with remaining the bond on the head base.
   (Supply part No. of azimuth adjusting screw: **RHD17015**)
3. Playback the azimuth adjustment portion (8 kHz, -20 dB) of test tape (QZZCFM). Adjust the azimuth adjusting screw until the outputs of the L/R-ch are maximized. (Refer to Fig. 4.)
   Make sure that the difference in the peak level between the left and right channels does not exceed 0.5 dB.
4. Perform the same adjustment in reverse playback mode.

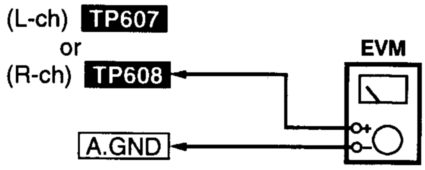


Fig. 3

Check of the level difference forward and reverse directions

5. Playback the playback gain adjustment portion (315 Hz, 0 dB) of test tape (QZZCFM). Check if level difference between forward and reverse direction is within 1.5 dB.
6. After the adjustment, apply screwlock to the azimuth adjusting screw.

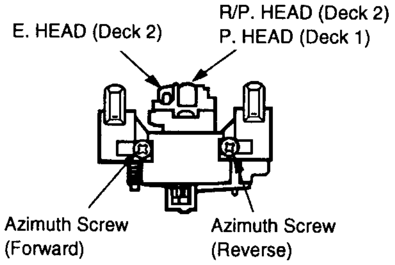


Fig. 4

TAPE SPEED ADJUSTMENT (DECK 1/2)

Note: When connecting the unit to other system components for testing, short the section between the test points TP609 and TP604 and turn on the entire system. (The unit is set to the TEST mode, and either the DECK1 or DECK2 indicators will blink.)

Normal speed (Standard value: 3000 ± 45 Hz)

1. Playback the middle portion of the test tape (QZZCWAT).
2. Adjust Deck 1 = **VR801** and Deck 2 = **VR803** for the output value shown below. (Refer to Fig. 2)

Adjustment target: 3000 ± 15 Hz (NORMAL speed)
Standard value: 3000 ± 45 Hz (NORMAL speed)

High speed [Set the unit to forward (FWD) mode.]

3. Playback the middle portion on the test tape (QZZCWAT).
4. Press the one touch tape edit (High) button.
   This will set the high speed mode.
5. At that time, check if the output from DECK 1 is within the standard value.

Standard value: 5000 ± 600 Hz (HIGH speed)

6. Adjust **VR802** so that the output frequency of DECK 2 is within ± **30 Hz** for the value of the output frequency of DECK 1. (Refer to Fig. 2.)

Note: When connecting the unit to other system components, disconnect the short between the test points TP609 and TP604.

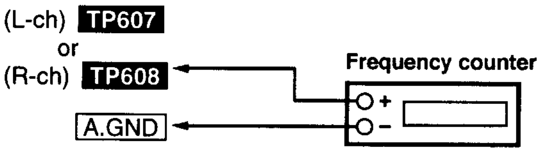


Fig. 5

PLAYBACK GAIN ADJUSTMENT (DECK1/2)

1. Find the start of the 315 Hz/0 dB section of the test tape (QZZCFM), insert the tape into Deck1 and 2, and play it back (FWD)
3. Adjust Deck 2 : **VR102** (L-ch) [**VR103** (R-ch)] and Deck 1 : **VR104** (L-ch) [**VR101** (R-ch)] so that the output is within the standard value. (Refer to Fig. 2.)

Standard value : 280 mV ± 15 mV

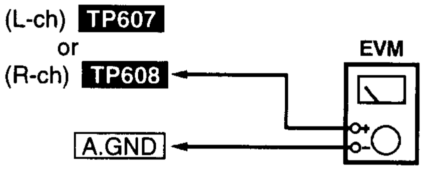


Fig. 6

ERASE CURRENT CONFIRMATION (DECK2)

1. Insert the blank tape into Deck2, and press the REC PAUSE button.
3. Check if the output at this time between the erase current confirmation point TP301 and TP302 (the output on both edged of R313) is within the standard value. (Refer to Fig. 7.)

Standard value		EVM reading
Normal tape	: 85 ± 25 mA	(85 ± 25 mV)
CrO2 tape	: 150 ± 25 mA	(150 ± 25 mV)
Metal tape	: 185 ± 25 mA	(185 ± 25 mV)

Note: The test tape is not required when confirming the erase current.

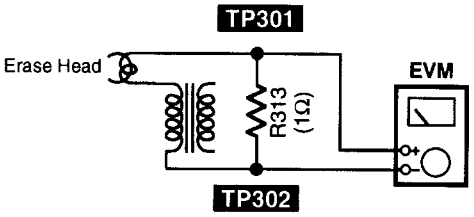


Fig. 7

Playback frequency response check (DECK 1/2)

Playback the 315 Hz/-20 dB and 12.5 kHz to 63 Hz/-20 dB sections of the test tape (QZZCFM) and then, using the 315 Hz/-20 dB playback output as a reference (0 dB), confirm that the playback frequency response is within the range shown in Fig. 9.

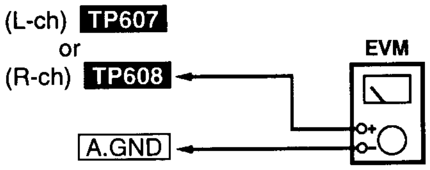


Fig. 8

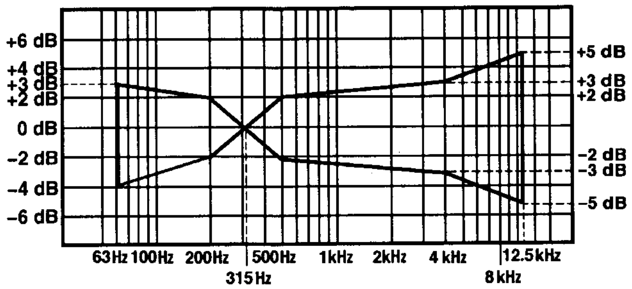


Fig. 9

Recording/playback frequency response and gain check (DECK 2)

Normal tape check

1. Insert a Normal-type blank tape (QZZCRA) into Deck 2.
2. Record signals at 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 2 kHz, 10 kHz and 12.5 kHz (28 mV).
3. Set the playback frequency of the recorded signals at 1 kHz as the reference response (0 dB).
4. Playback the recorded signals to confirm that the output is within the range of the overall frequency response shown in Fig. 11.

CrO2/Metal tape check

5. Repeat steps 2 to 4 for each tape and confirm that the output for each is within the range of the overall frequency response shown in Fig. 12.

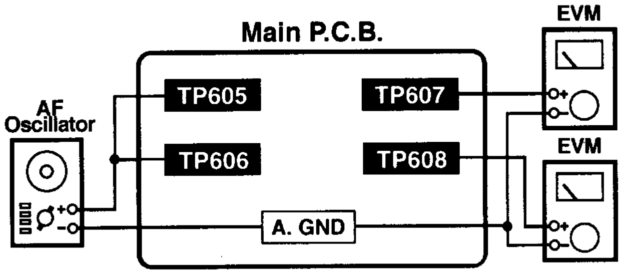


Fig. 10

Normal Overall frequency response chart (NR OFF)

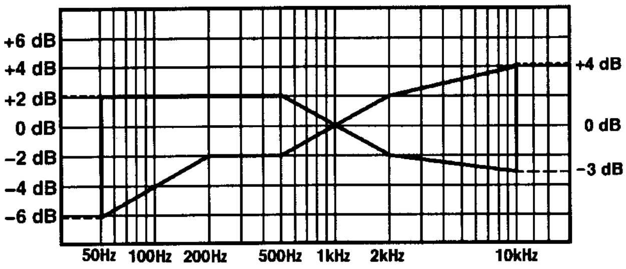


Fig. 11

CrO2 Metal Overall frequency response chart (NR OFF)

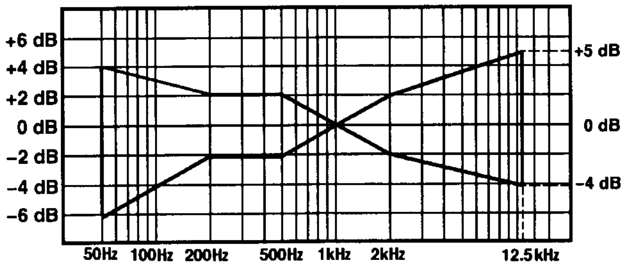


Fig. 12

■ Schematic Diagram

Page
A MAIN CIRCUIT .... 19~22
B MECHANISM CIRCUIT (DECK 1) 21
C MECHANISM CIRCUIT (DECK 2) 21
D POWER SUPPLY CIRCUIT 22
E OPERATION CIRCUIT 23

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S900** : Stop switch (■)
- **S901** : DECK 2 cassette holder open switch (⏏ OPEN)
- **S902** : One-touch tape edit switch (TAPE EDIT/HIGH)
- **S903** : One-touch tape edit switch (TAPE EDIT/NOR)
- **S904** : Record pause switch (● REC PAUSE)
- **S905** : Dolby noise reduction switch (DOLBY NR)
- **S906** : Fast forward/tape program sensor switch (►►)
- **S907** : Forward side playback switch (►)
- **S909** : Reverse side playback switch (◄)
- **S910** : Rewind/tape program sensor switch (◄◄)
- **S911** : Reverse mode select switch (REV MODE)
- **S912** : DECK 1/DECK 2 select switch (DECK 1/2)
- **S913** : Counter display switch (COUNTER/DISPLAY)
- **S914** : Counter reset switch (COUNTER/RESET)
- **S915** : DECK 1 cassette holder open switch (⏏ OPEN)
- **S951** : DECK 1 mode detect switch
- **S952** : DECK 1 half detect switch
- **S953** : DECK 1 CrO2 tape detect switch
- **S971** : DECK 2 mode detect switch
- **S972** : DECK 2 half detect switch
- **S973** : DECK 2 CrO2 tape detect switch
- **S974** : DECK 2 reverse side record prevention tab detect switch
- **S975** : DECK 2 forward side record prevention tab detect switch
- **S976** : DECK 2 METAL tape detect switch
- **VR101** : DECK 1 Playback gain adjustment (R-ch)
- **VR102** : DECK 2 Playback gain adjustment (L-ch)
- **VR103** : DECK 2 Playback gain adjustment (R-ch)
- **VR104** : DECK 1 Playback gain adjustment (L-ch)
- **VR801** : DECK 1 tape speed adjustment (normal)
- **VR802** : DECK 2 tape speed adjustment (high)
- **VR803** : DECK 2 tape speed adjustment (normal)

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

  No mark : Playback ( ) : Recording

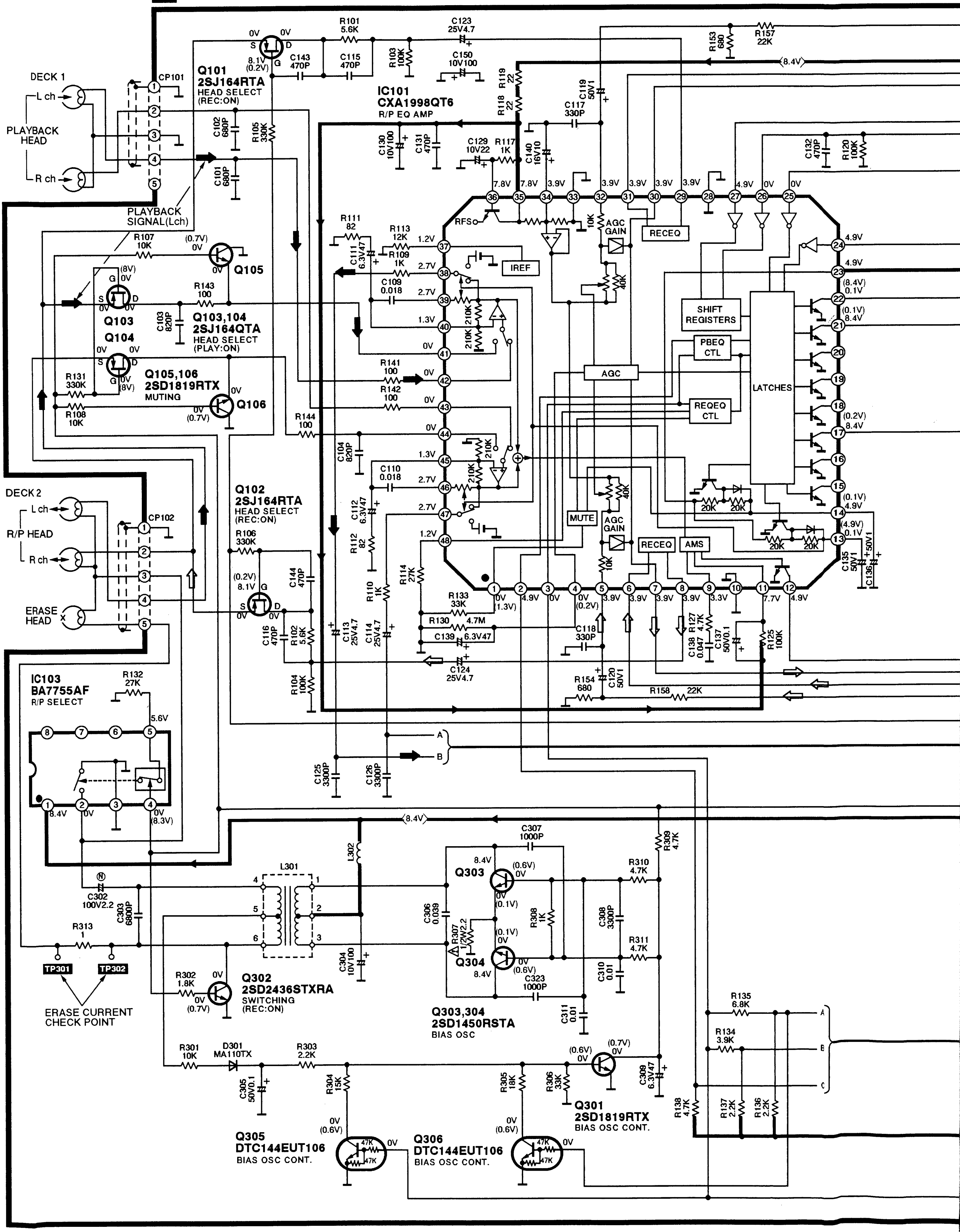
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

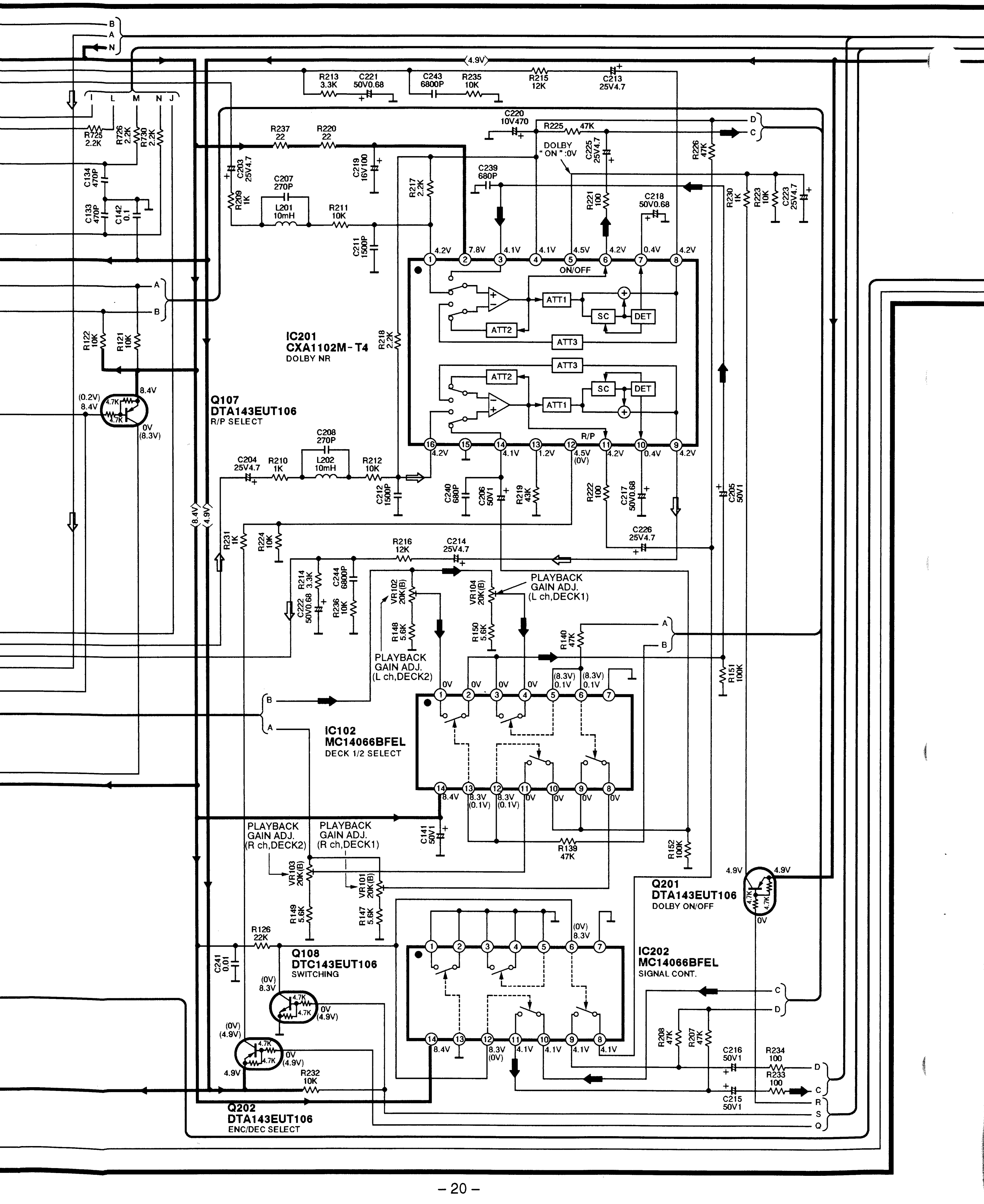
- **Voltage and signal line**

━━►━━ : Positive voltage line ➡ : Playback signal Line ⇨ : Recording signal Line

A MAIN CIRCUIT (P.C.Board:on page 24)


DECK 1
L ch
PLAYBACK HEAD
R ch
CP101
Q101
2SJ164RTA
HEAD SELECT
(REC:ON)
R101 5.6K
C123 25V4.7
C150 10V100
C143 470P
C115 470P
R103 100K
IC101
CXA1998QT6
R/P EQ AMP
R119 22
R118 22
C119 50V1
C117 330P
R153 680
R157 22K
(8.4V)
C102 680P
R105 330K
C101 680P
C130 10V100
C131 470P
C129 10V22
R117 1K
C140 16V10
C132 470P
R120 100K
PLAYBACK SIGNAL(Lch)
R107 10K
Q105
R143 100
C103 820P
Q103,104
2SJ164QTA
HEAD SELECT
(PLAY:ON)
Q103
Q104
R131 330K
R108 10K
Q105,106
2SD1819RTX
MUTING
Q106
R111 82
R113 12K
R109 1K
C111 6.3V47
C109 0.018
RFS
IREF
AGC GAIN
RECEQ
SHIFT REGISTERS
PBEQ CTL
AGC
LATCHES
REQEQ CTL
R141 100
R142 100
R144 100
C104 820P
C110 0.018
C112 6.3V47
R112 82
MUTE
AGC GAIN
RECEQ
AMS
DECK2
L ch
R/P HEAD
R ch
ERASE HEAD
CP102
Q102
2SJ164RTA
HEAD SELECT
(REC:ON)
R106 330K
C144 470P
C116 470P
R102 5.6K
R104 100K
C113 25V4.7
C114 25V4.7
R110 1K
R114 27K
R133 33K
R130 4.7M
C139 6.3V47
C124 25V4.7
C118 330P
R154 680
C120 50V1
R158 22K
R127 4.7K
C138 0.047
C137 50V0.1
R125 100K
C135 50V1
C136 50V1
IC103
BA7755AF
R/P SELECT
R132 27K
5.6V
C125 3300P
C126 3300P
A
B
L302
L301
C307 1000P
R309 4.7K
Q303
R310 4.7K
C306 0.039
R307 1/2W2.2
R308 1K
C308 3300P
R311 4.7K
Q304
C323 1000P
C310 0.01
C311 0.01
C302 100V2.2
C303 6800P
R313 1
TP301
TP302
ERASE CURRENT CHECK POINT
C304 10V100
R302 1.8K
Q302
2SD2436STXRA
SWITCHING
(REC:ON)
Q303,304
2SD1450RSTA
BIAS OSC
R135 6.8K
R134 3.9K
R301 10K
D301 MA110TX
R303 2.2K
C305 50V0.1
R304 15K
R305 18K
R306 33K
Q301
2SD1819RTX
BIAS OSC CONT.
C309 6.3V47
R138 4.7K
R137 2.2K
R136 2.2K
Q305
DTC144EUT106
BIAS OSC CONT.
Q306
DTC144EUT106
BIAS OSC CONT.
47K

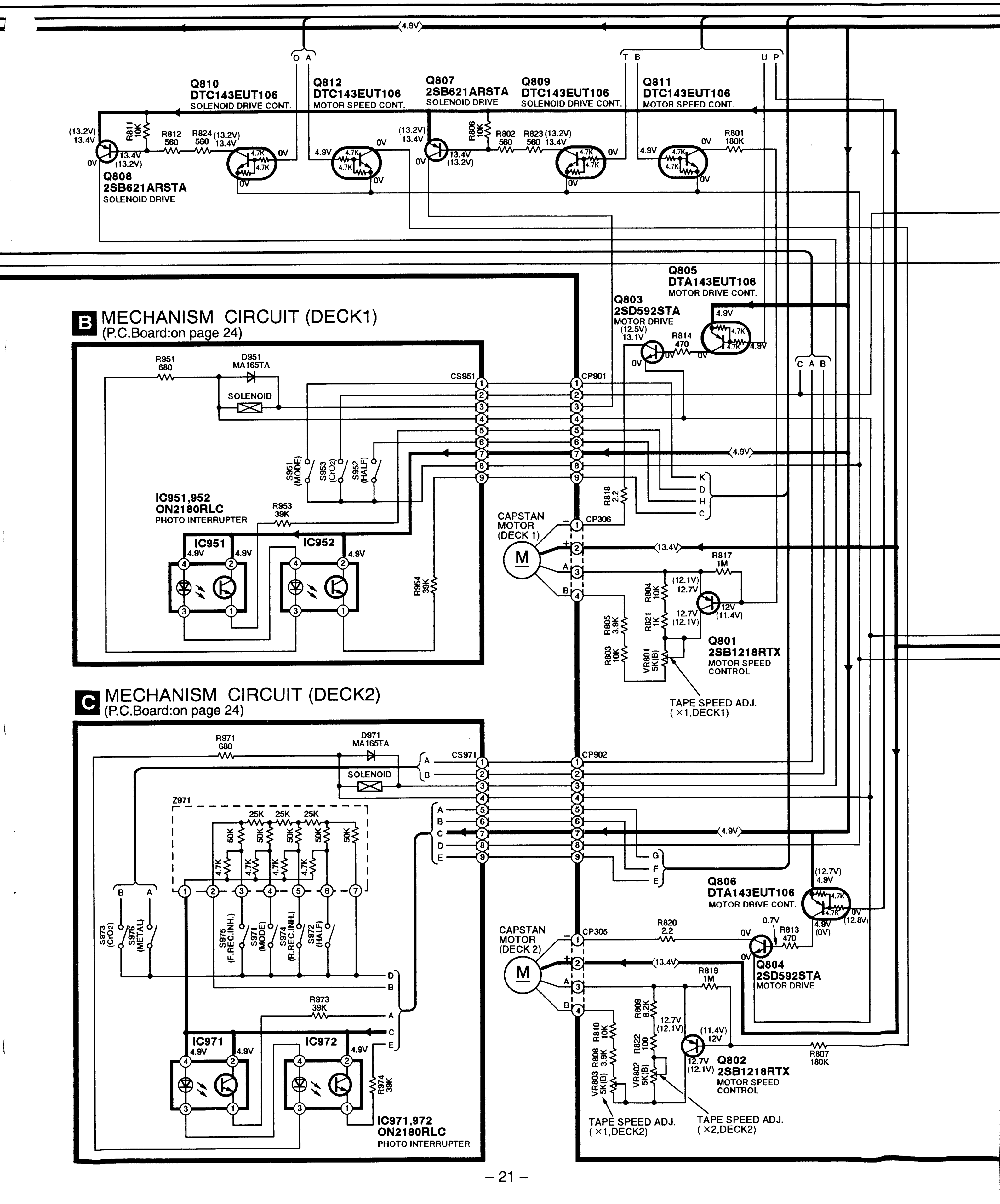
: Positive voltage line
: Playback signal Line
: Recording signal Line


IC201
CXA1102M-T4
DOLBY NR
ATT1
ATT2
ATT3
SC
DET
ON/OFF
R/P
DOLBY
" ON ":0V
Q107
DTA143EUT106
R/P SELECT
IC102
MC14066BFEL
DECK 1/2 SELECT
PLAYBACK
GAIN ADJ.
(L ch,DECK1)
PLAYBACK
GAIN ADJ.
(L ch,DECK2)
PLAYBACK
GAIN ADJ.
(R ch,DECK2)
PLAYBACK
GAIN ADJ.
(R ch,DECK1)
Q201
DTA143EUT106
DOLBY ON/OFF
IC202
MC14066BFEL
SIGNAL CONT.
Q108
DTC143EUT106
SWITCHING
Q202
DTA143EUT106
ENC/DEC SELECT
R213 3.3K
C221 50V0.68
C243 6800P
R235 10K
R215 12K
C213 25V4.7
C220 10V470
R225 47K
R237 22
R220 22
C203 25V4.7
C219 16V100
C207 270P
R209 1K
L201 10mH
R211 10K
C211 1500P
R217 2.2K
C239 680P
C225 25V4.7
R221 100
C218 50V0.68
R226 47K
R230 1K
R223 10K
C223 25V4.7
R725 2.2K
R726 2.2K
R730 2.2K
C134 470P
C133 470P
C142 0.1
R122 10K
R121 10K
R218 2.2K
C208 270P
C204 25V4.7
R210 1K
L202 10mH
R212 10K
C212 1500P
C240 680P
C206 50V1
R219 43K
R222 100
C217 50V0.68
C205 50V1
C226 25V4.7
R231 1K
R224 10K
R216 12K
C214 25V4.7
R214 3.3K
C244 6800P
C222 50V0.68
R236 10K
VR102 20K(B)
R148 5.6K
VR104 20K(B)
R150 5.6K
R140 47K
R151 100K
C141 50V1
R139 47K
R152 100K
VR103 20K(B)
R149 5.6K
VR101 20K(B)
R147 5.6K
R126 22K
C241 0.01
R232 10K
R208 47K
R207 47K
C216 50V1
R234 100
R233 100
C215 50V1
4.7K
(4.9V)
(8.4V)
4.2V
7.8V
4.1V
4.5V
0.4V
1.2V
(0V)
(0.2V)
8.4V
0V
(8.3V)
(8.3V)
0.1V
8.3V
(0.1V)
4.9V
(4.9V)
B
A
N
I
L
M
J
D
C
R
S
Q

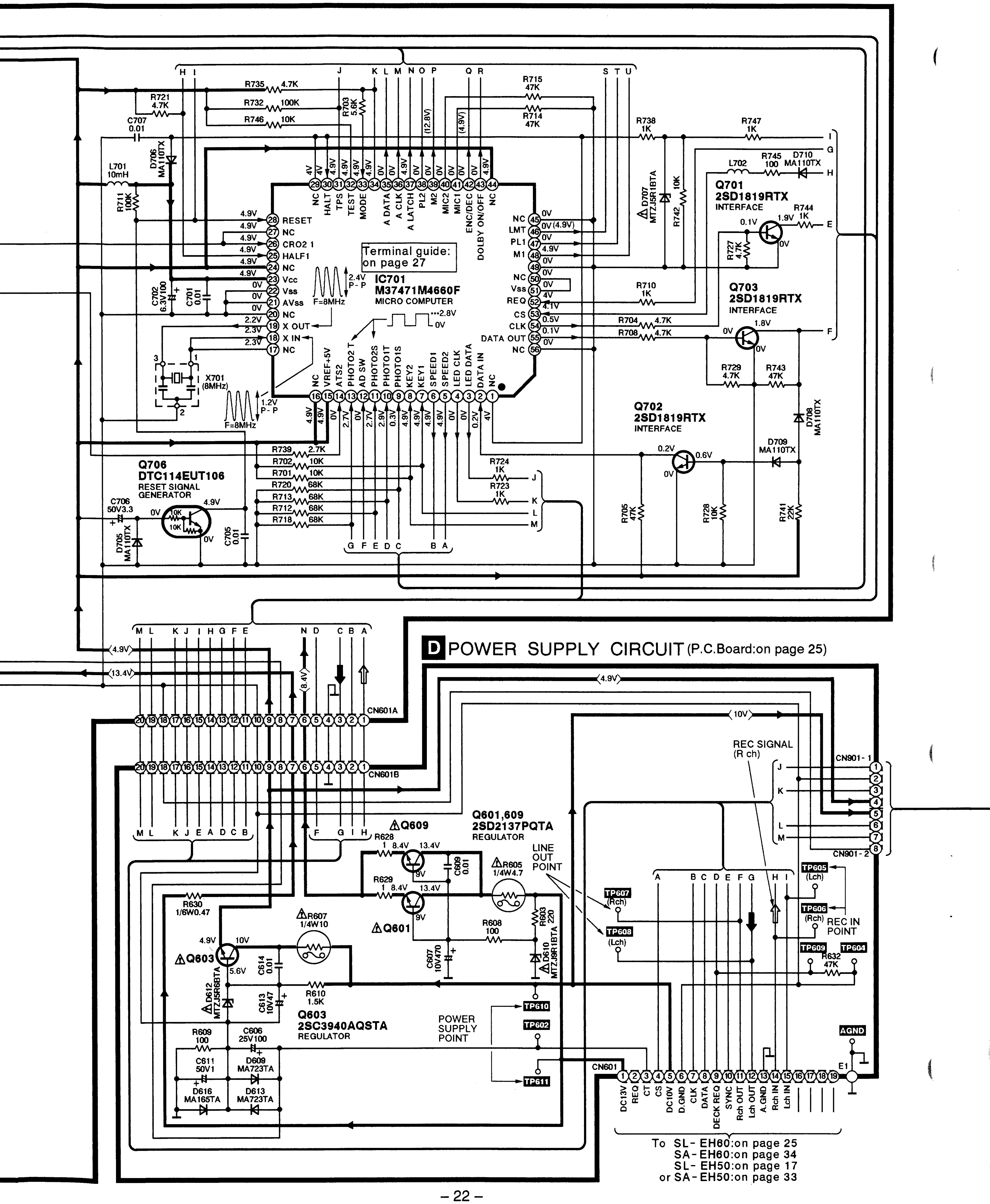
A MAIN CIRCUIT (P.C.Board:on page 24)

B MECHANISM CIRCUIT (DECK1) (P.C.Board:on page 24)

C MECHANISM CIRCUIT (DECK2) (P.C.Board:on page 24)


4.9V
O A
T B
U P
Q810
DTC143EUT106
SOLENOID DRIVE CONT.
Q812
DTC143EUT106
MOTOR SPEED CONT.
Q807
2SB621ARSTA
SOLENOID DRIVE
Q809
DTC143EUT106
SOLENOID DRIVE CONT.
Q811
DTC143EUT106
MOTOR SPEED CONT.
R811 10K
R812 560
R824 560
R806 10K
R802 560
R823 560
R801 180K
4.7K
(13.2V)
13.4V
0V
4.9V
Q808
2SB621ARSTA
SOLENOID DRIVE
Q805
DTA143EUT106
MOTOR DRIVE CONT.
Q803
2SD592STA
MOTOR DRIVE
(12.5V)
13.1V
R814 470
C A B
R951 680
D951 MA165TA
SOLENOID
CS951
CP901
S951 (MODE)
S953 (CrO2)
S952 (HALF)
IC951,952
ON2180RLC
PHOTO INTERRUPTER
R953 39K
IC951
IC952
R954 39K
K
D
H
C
R818 2.2
CAPSTAN MOTOR (DECK 1)
M
CP306
13.4V
R817 1M
R804 10K
(12.1V) 12.7V
12V (11.4V)
R821 1K
12.7V (12.1V)
R805 3.9K
R803 10K
VR801 5K(B)
Q801
2SB1218RTX
MOTOR SPEED CONTROL
TAPE SPEED ADJ. (×1,DECK1)
R971 680
D971 MA165TA
CS971
CP902
Z971
25K 25K 25K
50K
4.7K
S973 (CrO2)
S976 (METAL)
S975 (F.REC.INH.)
S971 (MODE)
S974 (R.REC.INH.)
S972 (HALF)
G
F
E
Q806
DTA143EUT106
MOTOR DRIVE CONT.
(12.7V) 4.9V
0V (12.8V)
4.9V (0V)
CAPSTAN MOTOR (DECK 2)
CP305
R820 2.2
0.7V
R813 470
Q804
2SD592STA
MOTOR DRIVE
R819 1M
R809 8.2K
12.7V (12.1V)
(11.4V) 12V
R810 10K
R808 3.9K
R822 100
VR803 5K(B)
VR802 5K(B)
12.7V (12.1V)
Q802
2SB1218RTX
MOTOR SPEED CONTROL
R807 180K
R973 39K
IC971
IC972
R974 39K
IC971,972
ON2180RLC
PHOTO INTERRUPTER
TAPE SPEED ADJ. (×1,DECK2)
TAPE SPEED ADJ. (×2,DECK2)

: Positive voltage line : Playback signal Line : Recording signal Line

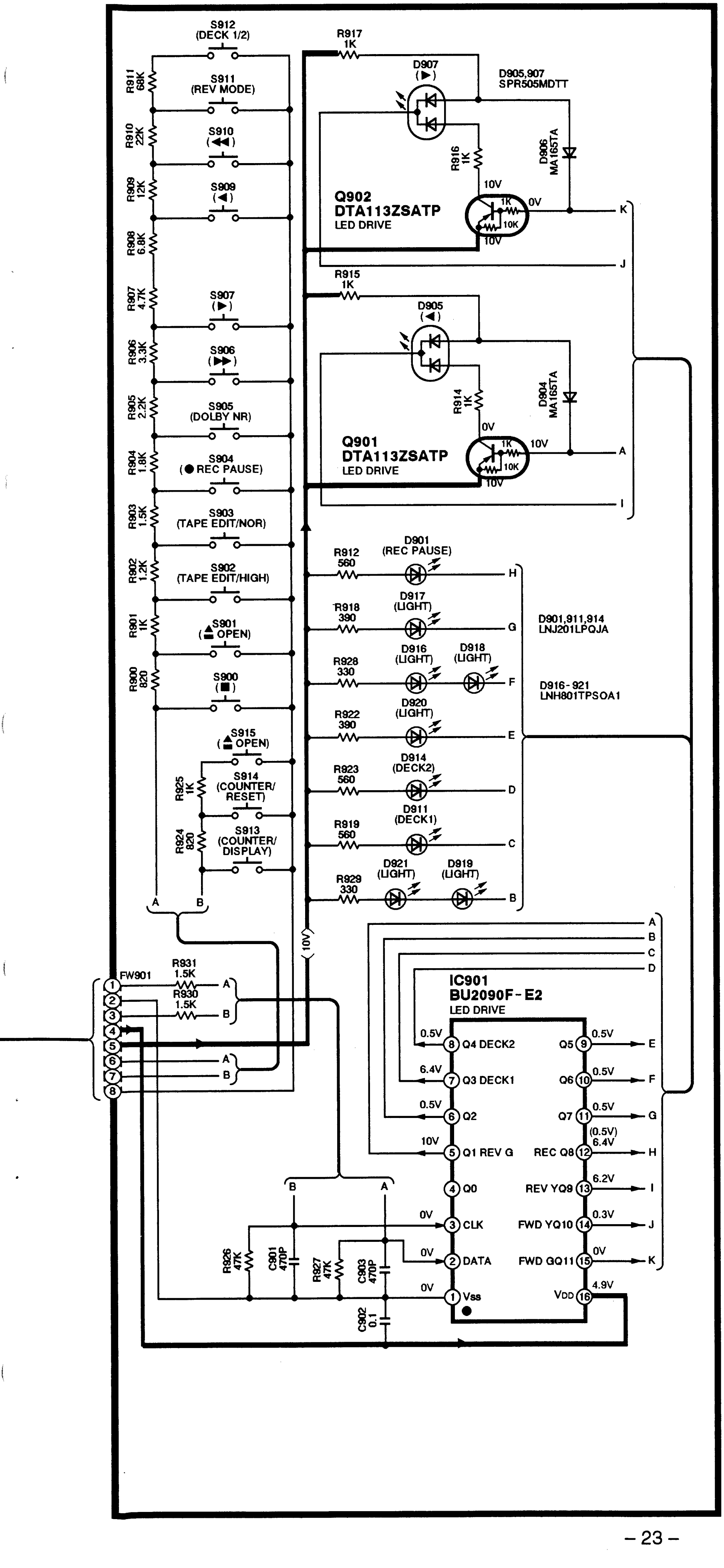


D POWER SUPPLY CIRCUIT (P.C.Board:on page 25)

IC701
M37471M4660F
MICRO COMPUTER
Terminal guide: on page 27
RESET
NC
CRO2 1
HALF1
Vcc
Vss
AVss
X OUT
X IN
HALT
TPS
TEST
MODE
A DATA
A CLK
A LATCH
PL2
M2
MIC2
MIC1
ENC/DEC
DOLBY ON/OFF
LMT
PL1
M1
REQ
CS
CLK
DATA OUT
VREF+5V
ATS2
PHOTO2 T
AD SW
PHOTO2S
PHOTO1T
PHOTO1S
KEY2
KEY1
SPEED1
SPEED2
LED CLK
LED DATA
DATA IN
F=8MHz
2.4V P-P
1.2V P-P
2.8V
X701 (8MHz)
Q706
DTC114EUT106
RESET SIGNAL GENERATOR
Q701
2SD1819RTX
INTERFACE
Q703
2SD1819RTX
INTERFACE
Q702
2SD1819RTX
INTERFACE
R735 4.7K
R732 100K
R746 10K
R721 4.7K
R703 5.6K
R715 47K
R714 47K
R738 1K
R747 1K
R745 100
D710 MA110TX
L702
R744 1K
R727 4.7K
D707 MTZJ5R1BTA
R742 10K
R710 1K
R704 4.7K
R708 4.7K
R729 4.7K
R743 47K
D708 MA110TX
D709 MA110TX
R705 47K
R728 10K
R741 22K
R724 1K
R723 1K
R739 2.7K
R702 10K
R701 10K
R720 68K
R713 68K
R712 68K
R718 68K
C707 0.01
L701 10mH
D706 MA110TX
R711 100K
C702 6.3V100
C701 0.01
C706 50V3.3
D705 MA110TX
C705 0.01
CN601A
CN601B
Q601,609
2SD2137PQTA
REGULATOR
Q609
Q601
R628
R629
C609 0.01
R605 1/4W4.7
LINE OUT POINT
R630 1/6W0.47
R607 1/4W10
R608 100
R603 220
D610 MTZJ9R1BTA
C607 10V470
Q603
C614 0.01
D612 MTZJ5R6BTA
C613 10V47
R610 1.5K
Q603
2SC3940AQSTA
REGULATOR
POWER SUPPLY POINT
R609 100
C606 25V100
C611 50V1
D609 MA723TA
D616 MA165TA
D613 MA723TA
TP610
TP602
TP611
TP607 (Rch)
TP608 (Lch)
TP605 (Lch)
TP606 (Rch)
REC IN POINT
TP609
TP604
R632 47K
AGND
E1
REC SIGNAL (R ch)
CN901-1
CN901-2
CN601
DC13V
REQ
CT
CS
DC10V
D.GND
CLK
DATA
DECK REQ
SYNC
Rch OUT
Lch OUT
A.GND
Rch IN
Lch IN
4.9V
13.4V
8.4V
10V
9V
5.6V

To SL-EH60:on page 25
SA-EH60:on page 34
SL-EH50:on page 17
or SA-EH50:on page 33

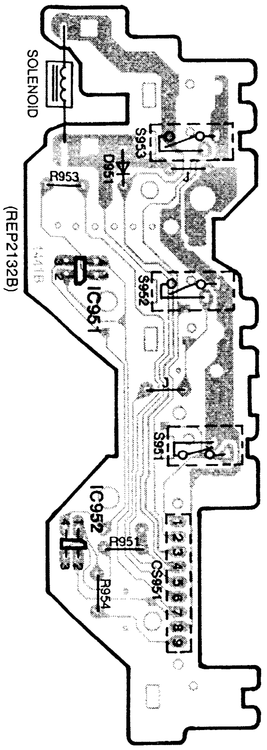
E OPERATION CIRCUIT (P.C.Board:on page 25)


S912 (DECK 1/2)
R911 68K
S911 (REV MODE)
R910 22K
S910 (◀◀)
R909 12K
S909 (◀)
R908 6.8K
R907 4.7K
S907 (▶)
R906 3.3K
S906 (▶▶)
R905 2.2K
S905 (DOLBY NR)
R904 1.8K
S904 (● REC PAUSE)
R903 1.5K
S903 (TAPE EDIT/NOR)
R902 1.2K
S902 (TAPE EDIT/HIGH)
R901 1K
S901 (⏏ OPEN)
R900 820
S900 (■)
S915 (⏏ OPEN)
R925 1K
S914 (COUNTER/ RESET)
R924 820
S913 (COUNTER/ DISPLAY)
R917 1K
D907 (▶)
D905,907 SPR505MDTT
R916 1K
D906 MA165TA
Q902 DTA113ZSATP LED DRIVE
10V
0V
1K
10K
R915 1K
D905 (◀)
R914 1K
D904 MA165TA
Q901 DTA113ZSATP LED DRIVE
R912 560
D901 (REC PAUSE)
R918 390
D917 (LIGHT)
D901,911,914 LNJ201LPQJA
R928 330
D916 (LIGHT)
D918 (LIGHT)
D916-921 LNH801TPSOA1
R922 390
D920 (LIGHT)
R923 560
D914 (DECK2)
R919 560
D911 (DECK1)
R929 330
D921 (LIGHT)
D919 (LIGHT)
10V
FW901
R931 1.5K
R930 1.5K
IC901 BU2090F-E2 LED DRIVE
0.5V 8 Q4 DECK2
6.4V 7 Q3 DECK1
0.5V 6 Q2
10V 5 Q1 REV G
4 Q0
0V 3 CLK
0V 2 DATA
0V 1 Vss
Q5 9 0.5V
Q6 10 0.5V
Q7 11 0.5V
REC Q8 12 (0.5V) 6.4V
REV YQ9 13 6.2V
FWD YQ10 14 0.3V
FWD GQ11 15 0V
VDD 16 4.9V
R926 47K
C901 470P
R927 47K
C903 470P
C902 0.1
A
B
C
D
E
F
G
H
I
J
K

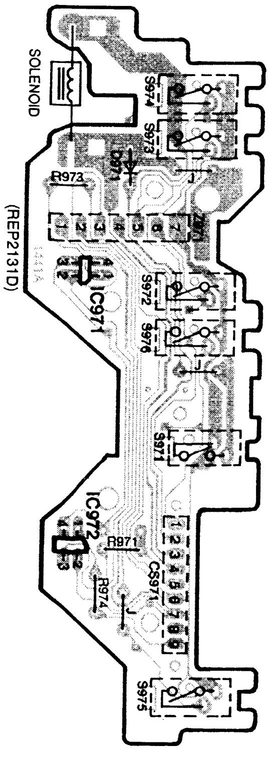
■ Printed Circuit Board Diagram

- This circuit board diagram may be modified at any time with the development of new technology.

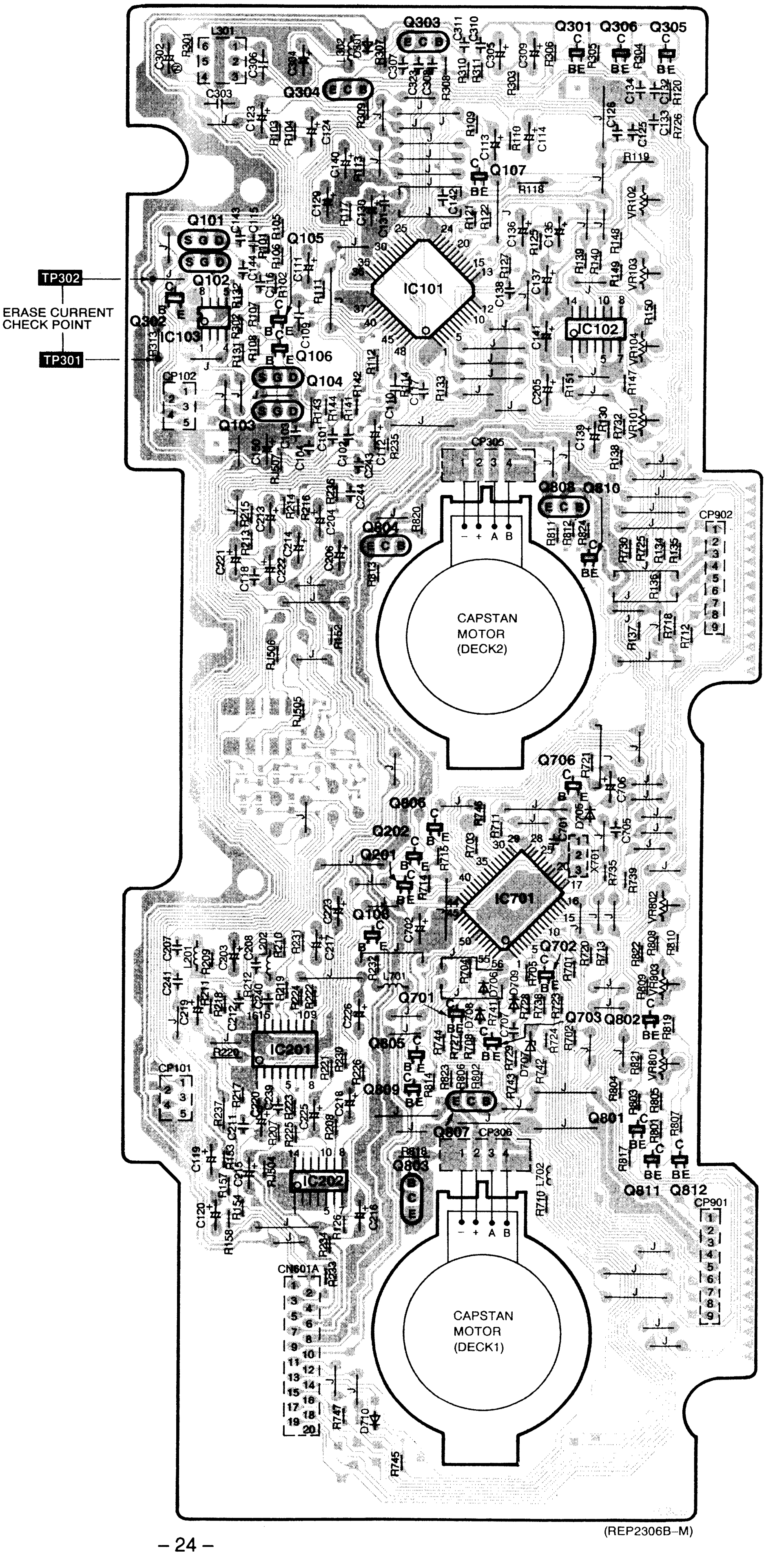
B MECHANISM P.C.B. (DECK1)


SOLENOID
S953
D951
R953
IC951
S952
S951
IC952
R951
CS951
R954
(REP2132B)

C MECHANISM P.C.B. (DECK2)

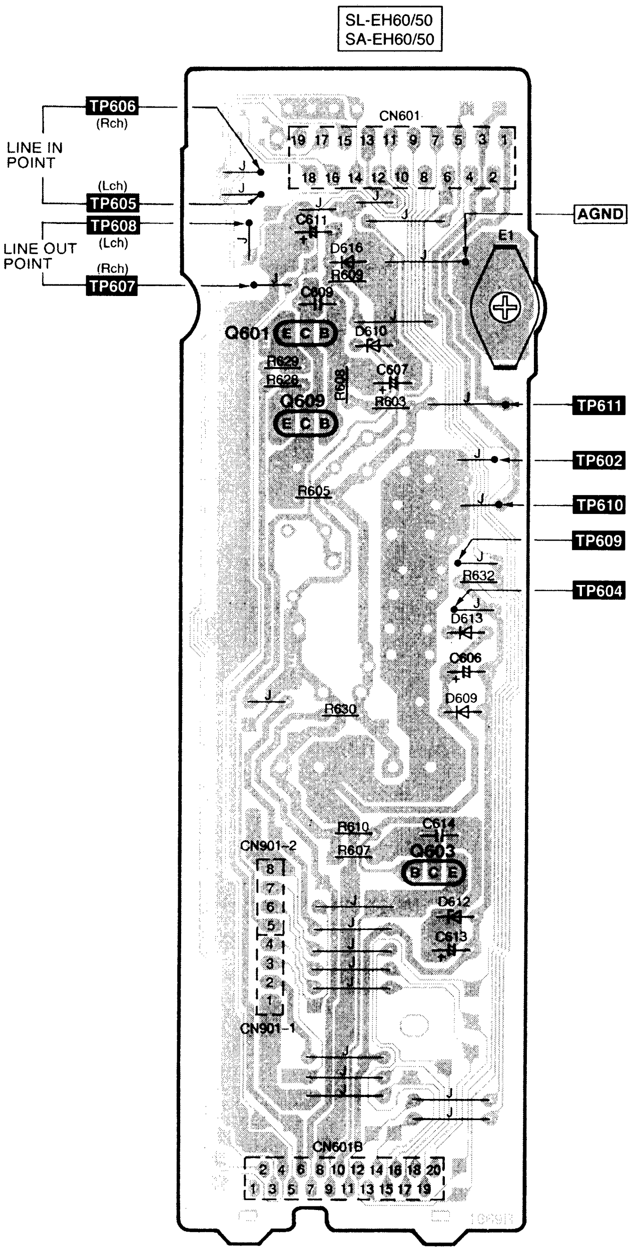

SOLENOID
S974
S973
D971
R973
IC971
S972
S976
S971
IC972
R971
CS971
R974
S975
(REP2131D)

A MAIN P.C.B.


TP302
ERASE CURRENT
CHECK POINT
TP301
L301
Q303
Q301
Q306
Q305
Q304
Q107
Q101
Q102
Q105
IC101
IC102
IC103
Q302
Q106
Q104
Q103
CP102
CP305
Q808
Q810
Q804
CP902
CAPSTAN
MOTOR
(DECK2)
Q706
Q806
Q202
Q201
IC701
Q108
Q702
Q701
Q703
Q802
Q805
IC201
CP101
Q809
Q807
CP306
Q801
Q803
IC202
Q811
Q812
CP901
CN601A
CAPSTAN
MOTOR
(DECK1)
VR101
VR102
VR103
VR104
VR801
VR802
VR803
X701
D710

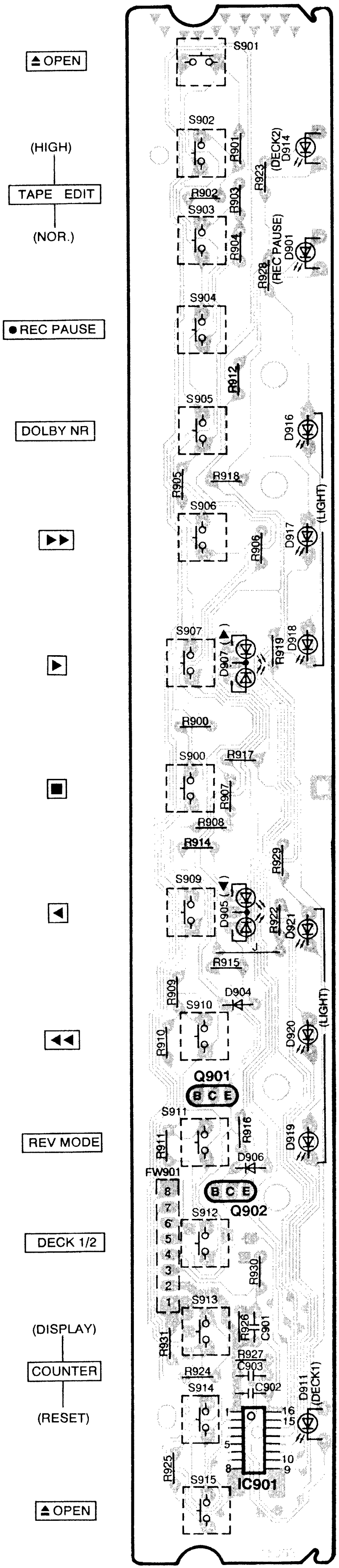
(REP2306B-M)

D POWER SUPPLY P.C.B.


SL-EH60/50
SA-EH60/50
TP606
(Rch)
LINE IN POINT
(Lch)
TP605
TP608
(Lch)
LINE OUT POINT
(Rch)
TP607
CN601
19 17 15 13 11 9 7 5 3 1
18 16 14 12 10 8 6 4 2
AGND
E1
C611
D616
R609
C609
Q601
E C B
D610
R629
R628
R608
C607
R603
Q609
E C B
TP611
TP602
R605
TP610
TP609
R632
TP604
D613
C606
D609
R630
R610
C614
R607
Q603
B C E
CN901-2
D612
C613
8 7 6 5 4 3 2 1
CN901-1
CN601B
2 4 6 8 10 12 14 16 18 20
1 3 5 7 9 11 13 15 17 19
J

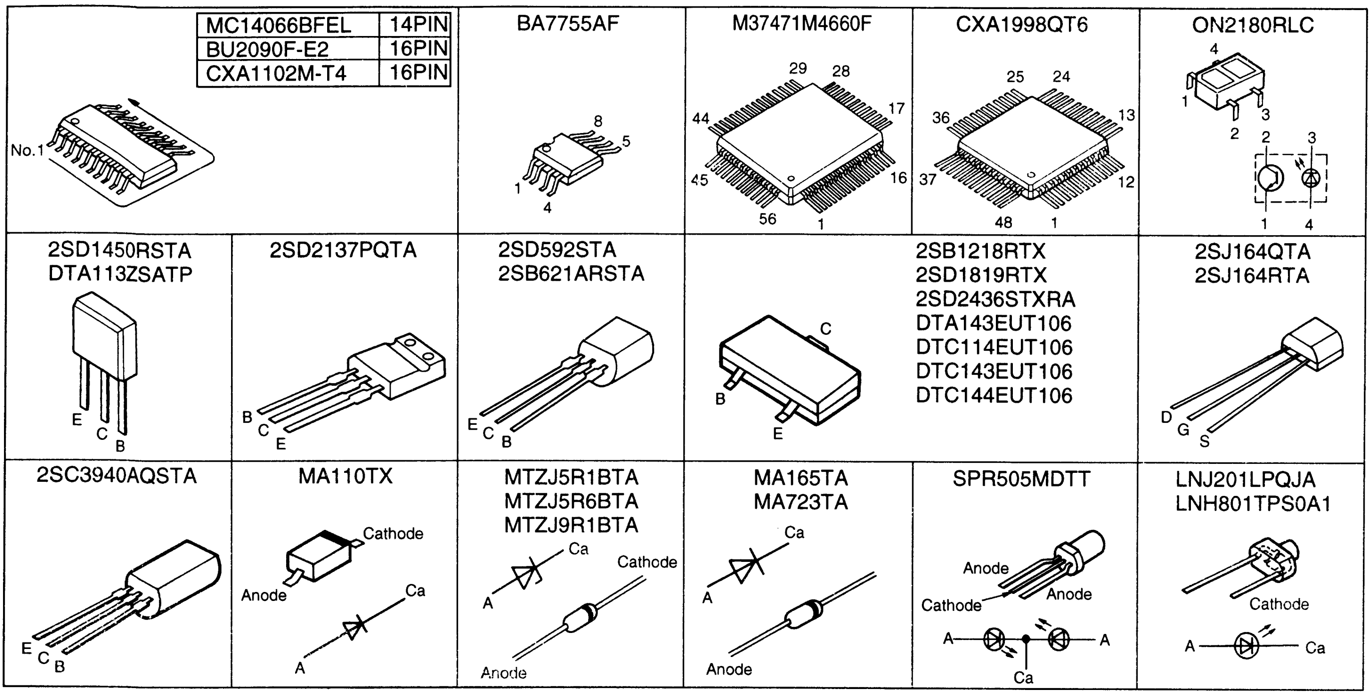
(REP2367B–P)

E OPERATION P.C.B.

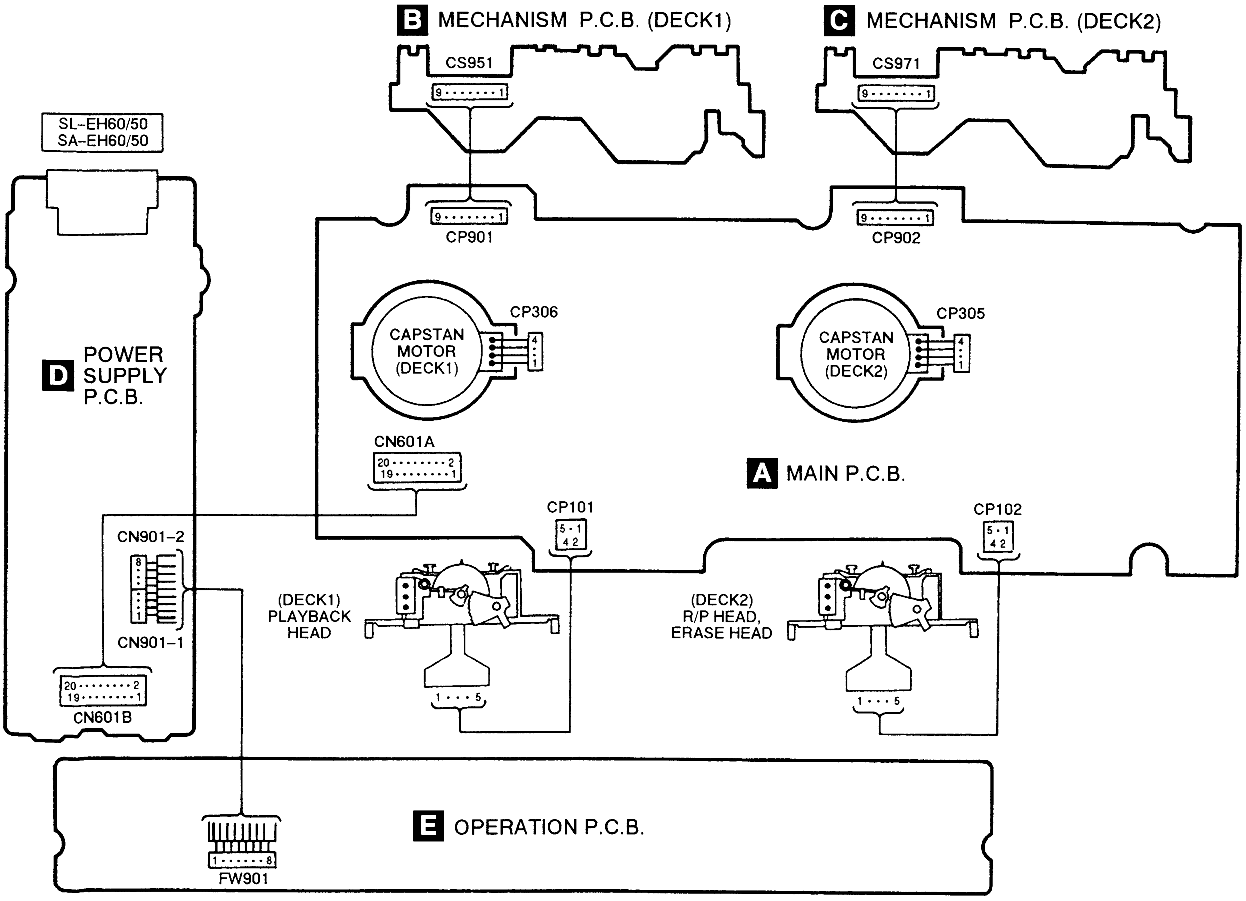

≜OPEN
S901
S902
(HIGH)
TAPE EDIT
(NOR.)
R901
(DECK2)
D914
R923
R902
R903
S903
R904
(REC PAUSE)
D901
R928
●REC PAUSE
S904
R912
S905
DOLBY NR
D916
R905
R918
(LIGHT)
S906
▶▶
R906
D917
S907
D907
R919
D918
▶
R900
S900
R917
■
R907
R908
R914
R929
S909
D905
◀
R922
D921
R915
R909
D904
S910
(LIGHT)
◀◀
R910
D920
Q901
B C E
S911
REV MODE
R916
R911
D906
D919
FW901
8 7 6 5 4 3 2 1
B C E
Q902
S912
DECK 1/2
R930
S913
(DISPLAY)
COUNTER
(RESET)
R926
C901
R931
R927
C903
R924
C902
S914
D911
(DECK1)
16
15
5
8
10
9
IC901
R925
S915
≜OPEN

(REP2307B–S)

■ Type Illustration of IC's, Transistors and Diodes


MC14066BFEL 14PIN
BU2090F-E2 16PIN
CXA1102M-T4 16PIN
No.1
BA7755AF
8
5
1
4
M37471M4660F
29
28
44
17
45
16
56
1
CXA1998QT6
25
24
36
13
37
12
48
1
ON2180RLC
4
1
3
2
2
3
1
4
2SD1450RSTA
DTA113ZSATP
E
C
B
2SD2137PQTA
B
C
E
2SD592STA
2SB621ARSTA
E
C
B
C
B
E
2SB1218RTX
2SD1819RTX
2SD2436STXRA
DTA143EUT106
DTC114EUT106
DTC143EUT106
DTC144EUT106
2SJ164QTA
2SJ164RTA
D
G
S
2SC3940AQSTA
E
C
B
MA110TX
Cathode
Anode
Ca
A
MTZJ5R1BTA
MTZJ5R6BTA
MTZJ9R1BTA
Ca
A
Cathode
Anode
MA165TA
MA723TA
Ca
A
Anode
SPR505MDTT
Anode
Cathode
Anode
A
A
Ca
LNJ201LPQJA
LNH801TPS0A1
Cathode
A
Ca

■ Wiring Connection Diagram

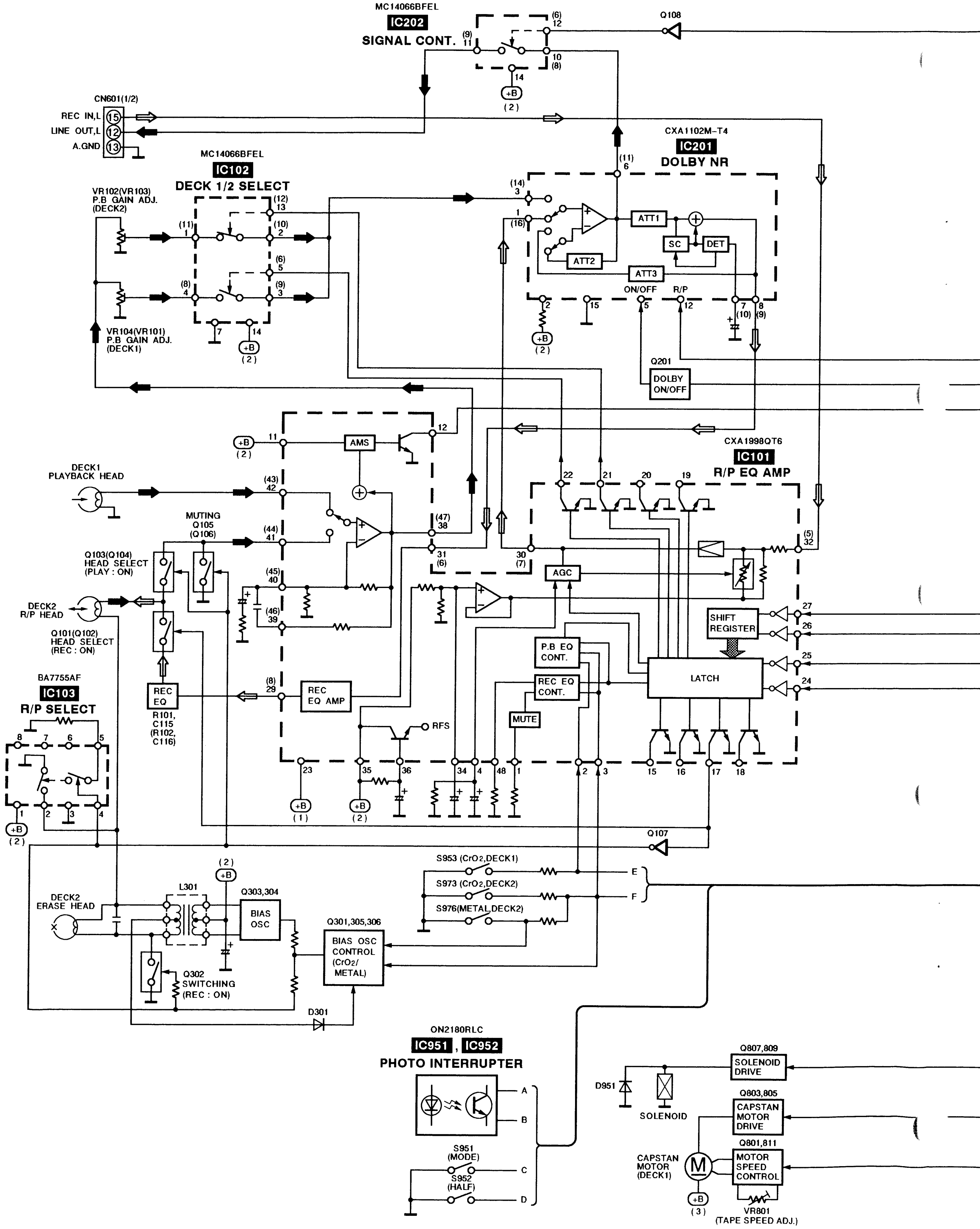

B MECHANISM P.C.B. (DECK1)
C MECHANISM P.C.B. (DECK2)
CS951
9 · · · · · · · 1
CS971
9 · · · · · · · 1
SL-EH60/50
SA-EH60/50
9 · · · · · · · 1
CP901
9 · · · · · · · 1
CP902
CAPSTAN MOTOR (DECK1)
CP306
4
1
CAPSTAN MOTOR (DECK2)
CP305
4
1
D POWER SUPPLY P.C.B.
CN601A
20 · · · · · · · · 2
19 · · · · · · · · 1
A MAIN P.C.B.
CP101
5 · 1
4 2
CP102
5 · 1
4 2
CN901-2
8
1
CN901-1
(DECK1) PLAYBACK HEAD
(DECK2) R/P HEAD, ERASE HEAD
1 · · · 5
1 · · · 5
20 · · · · · · · · 2
19 · · · · · · · · 1
CN601B
E OPERATION P.C.B.
1 · · · · · · 8
FW901

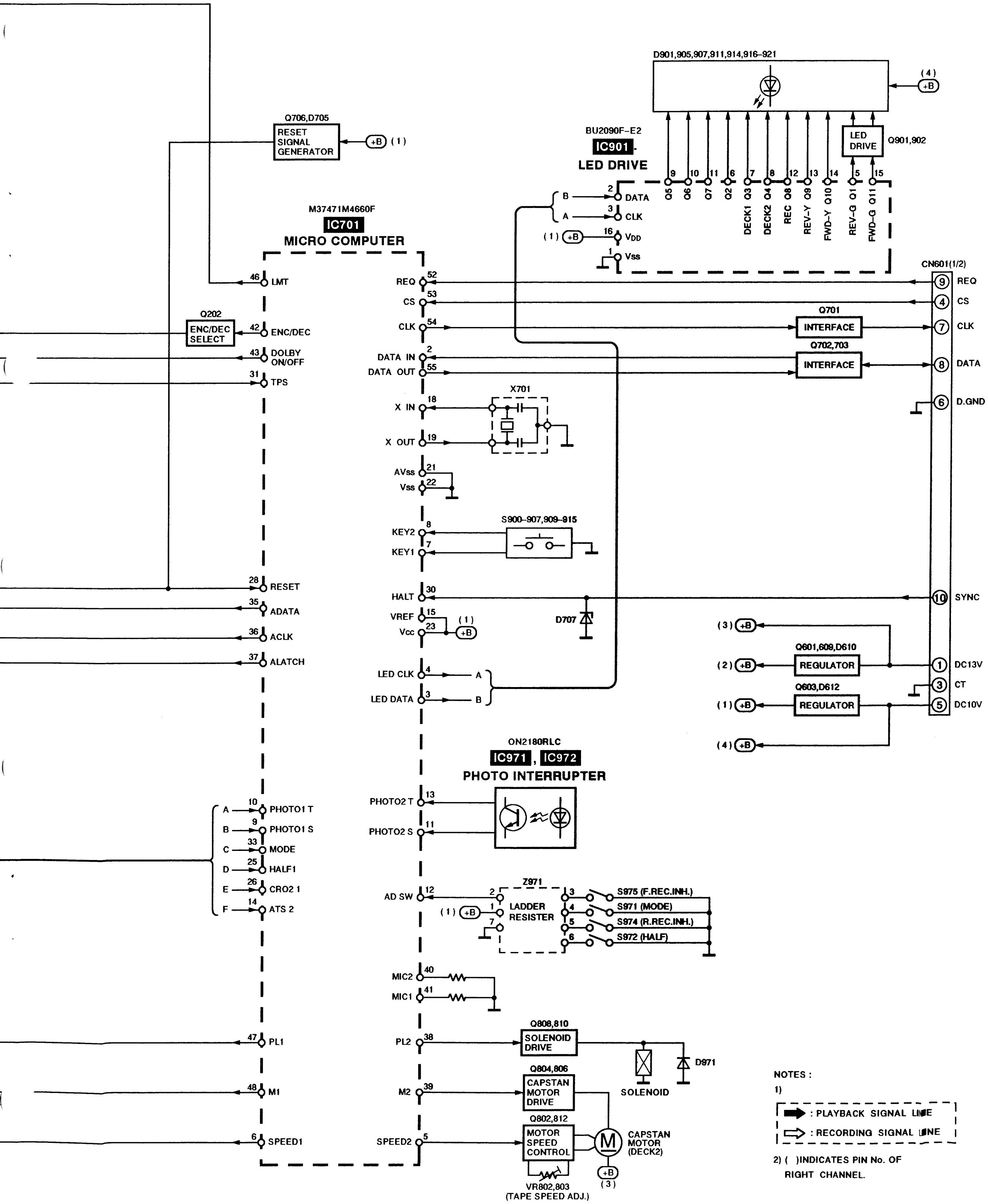
■ Terminal Function of IC's

● IC701 (M37471M4660F)

Pin No.	Terminal Name	I/O	Function
1	N.C.	—	Not used
2	DATA IN	I	Serial data input
3	LED-DATA	O	Serial data signal output for LED drive IC
4	LED-CLK	O	Serial clock signal output for LED drive IC
5	SPEED2	O	DECK 2 motor speed control signal output
6	SPEED1	O	DECK 1 motor speed control signal output
7, 8	KEY1, 2	I	Operation switch signal input
9	PHOTO1S	I	DECK 1 supply side reel pulse input
10	PHOTO1T	I	DECK 1 take-up side reel pulse input
11	PHOTO2S	I	DECK 2 supply side reel pulse input
12	AD-SW	I	DECK 2 mechanism switch signal input (Half, Mode, F. REC INH., R. REC INH.)
13	PHOTO2T	I	DECK 2 take-up side reel pulse input
14	ATS2	I	DECK 2 mechanism switch signal input (NORMAL/CrO2/METAL)
15	VREF	—	Reference voltage input terminal for A/D converter (+5 V)
16, 17	N.C.	—	Not used
18	XIN	I	Clock signal input
19	XOUT	O	Clock signal output
20	N.C.	—	Not used
21	AVSS	—	Connect to GND
22	VSS	—	GND terminal
23	VCC	—	Power supply (+5 V)
24	N.C.	—	Not used
25	HALF1	I	DECK 1 mechanism switch signal input (Half)
26	CRO21	I	DECK 1 mechanism switch signal input (NORMAL/CrO2)
27	N.C.	—	Not used
28	RESET	I	Reset signal input
29	N.C.	I	Not used
30	HALT	I	AC power source detect signal input
31	TPS	I	TPS signal input
32	TEST	I	Test mode select signal input
33	MODE	I	DECK 1 mechanism switch signal input (Mode)
34	—	—	Not used
35	ADATA	O	Serial data signal output for audio IC
36	ACLK	O	Serial clock signal output for audio IC
37	ALATCH	O	Serial latch signal output for audio IC
38	PL2	O	DECK 2 solenoid drive signal output
39	M2	O	DECK 2 motor drive signal output
40, 41	MIC2, 1	O	Not used
42	ENC/DEC	O	DOLBY NR record/play mode select signal output
43	DOLBY ON/OFF	O	DOLBY NR ON/OFF control signal output
44, 45	N.C.	—	Not used
46	LMT	O	Muting control signal output
47	PL1	O	DECK 1 solenoid drive signal output
48	M1	O	DECK 1 motor drive signal output
49	—	—	Not used
50	N.C.	—	Not used
51	VSS	—	GND terminal
52	REQ	I	Serial communication request signal input
53	CS	I	Serial communication complete signal input
54	CLK	O	Serial communication clock signal output
55	DATA OUT	O	Serial communication data signal output
56	N.C.	—	Not used

■ Block Diagram


MC14066BFEL
IC202
SIGNAL CONT.
Q108
CN601(1/2)
REC IN,L
LINE OUT,L
A.GND
15
12
13
+B
(2)
MC14066BFEL
IC102
DECK 1/2 SELECT
CXA1102M-T4
IC201
DOLBY NR
VR102(VR103)
P.B GAIN ADJ.
(DECK2)
VR104(VR101)
P.B GAIN ADJ.
(DECK1)
ATT1
ATT2
ATT3
SC
DET
ON/OFF
R/P
Q201
DOLBY
ON/OFF
AMS
DECK1
PLAYBACK HEAD
MUTING
Q105
(Q106)
Q103(Q104)
HEAD SELECT
(PLAY : ON)
DECK2
R/P HEAD
Q101(Q102)
HEAD SELECT
(REC : ON)
BA7755AF
IC103
R/P SELECT
REC
EQ
R101,
C115
(R102,
C116)
REC
EQ AMP
RFS
CXA1998QT6
IC101
R/P EQ AMP
AGC
SHIFT
REGISTER
LATCH
P.B EQ
CONT.
REC EQ
CONT.
MUTE
Q107
S953 (CrO2,DECK1)
S973 (CrO2,DECK2)
S976(METAL,DECK2)
E
F
DECK2
ERASE HEAD
L301
Q303,304
BIAS
OSC
Q301,305,306
BIAS OSC
CONTROL
(CrO2/
METAL)
Q302
SWITCHING
(REC : ON)
D301
ON2180RLC
IC951, IC952
PHOTO INTERRUPTER
A
B
S951
(MODE)
S952
(HALF)
C
D
Q807,809
SOLENOID
DRIVE
D951
SOLENOID
Q803,805
CAPSTAN
MOTOR
DRIVE
CAPSTAN
MOTOR
(DECK1)
M
Q801,811
MOTOR
SPEED
CONTROL
+B
(3)
VR801
(TAPE SPEED ADJ.)


Q706,D705
RESET SIGNAL GENERATOR
+B (1)
M37471M4660F
IC701
MICRO COMPUTER
46 LMT
Q202
ENC/DEC SELECT
42 ENC/DEC
43 DOLBY ON/OFF
31 TPS
28 RESET
35 ADATA
36 ACLK
37 ALATCH
A 10 PHOTO1 T
B 9 PHOTO1 S
C 33 MODE
D 25 HALF1
E 26 CRO2 1
F 14 ATS 2
47 PL1
48 M1
6 SPEED1
REQ 52
CS 53
CLK 54
DATA IN 2
DATA OUT 55
X IN 18
X OUT 19
X701
AVss 21
Vss 22
KEY2 8
KEY1 7
S900-907,909-915
HALT 30
D707
VREF 15
Vcc 23
(1) +B
LED CLK 4 A
LED DATA 3 B
ON2180RLC
IC971, IC972
PHOTO INTERRUPTER
PHOTO2 T 13
PHOTO2 S 11
AD SW 12
Z971
LADDER RESISTER
(1) +B
S975 (F.REC.INH.)
S971 (MODE)
S974 (R.REC.INH.)
S972 (HALF)
MIC2 40
MIC1 41
PL2 38
Q808,810
SOLENOID DRIVE
D971
SOLENOID
M2 39
Q804,806
CAPSTAN MOTOR DRIVE
Q802,812
MOTOR SPEED CONTROL
CAPSTAN MOTOR (DECK2)
+B (3)
SPEED2 5
VR802,803 (TAPE SPEED ADJ.)
D901,905,907,911,914,916-921
(4) +B
BU2090F-E2
IC901
LED DRIVE
B 2 DATA
A 3 CLK
(1) +B 16 VDD
1 Vss
9 Q5
10 Q6
11 Q7
6 Q2
7 Q3 DECK1
8 Q4 DECK2
12 Q8 REC
13 Q9 REV-Y
14 Q10 FWD-Y
5 Q1 REV-G
15 Q11 FWD-G
LED DRIVE
Q901,902
CN601(1/2)
9 REQ
4 CS
Q701
INTERFACE
7 CLK
Q702,703
INTERFACE
8 DATA
6 D.GND
10 SYNC
(3) +B
Q601,609,D610
(2) +B
REGULATOR
1 DC13V
3 CT
Q603,D612
(1) +B
REGULATOR
5 DC10V
(4) +B

NOTES :

1)

➡ : PLAYBACK SIGNAL LINE

⇨ : RECORDING SIGNAL LINE

2) ( )INDICATES PIN No. OF RIGHT CHANNEL.

■ Replacement Parts List (Electrical)

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*[M] Indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101	CXA1998QT6	IC	[M]
IC102	MC14066BFEL	IC	[M]
IC103	BA7755AF	IC	[M]
IC201	CXA1102M-T4	IC	[M]
IC202	MC14066BFEL	IC	[M]
IC701	M37471M4660F	IC	[M]
IC901	BU2090F-E2	IC	[M]
IC951, 952	0N2180RLC	IC	[M]
IC971, 972	0N2180RLC	IC	[M]
		TRANSISTOR(S)	
Q101, 102	2SJ164RTA	TRANSISTOR	[M]
Q103, 104	2SJ164QTA	TRANSISTOR	[M]
Q105, 106	2SD1819RTX	TRANSISTOR	[M]
Q107	DTA143EUT107	TRANSISTOR	[M]
Q108	DTC143EUT107	TRANSISTOR	[M]
Q201, 202	DTA143EUT107	TRANSISTOR	[M]
Q301	2SD1819RTX	TRANSISTOR	[M]
Q302	2SD2436STXRA	TRANSISTOR	[M]
Q303, 304	2SD1450RSTA	TRANSISTOR	[M]
Q305, 306	DTC144EUT106	TRANSISTOR	[M]
Q601⚠	2SD2137PQTA	TRANSISTOR	[M]
Q603⚠	2SC3940AQSTA	TRANSISTOR	[M]
Q609⚠	2SD2137PQTA	TRANSISTOR	[M]
Q701-703	2SD1819RTX	TRANSISTOR	[M]
Q706	DTC114EUT107	TRANSISTOR	[M]
Q801, 802	2SB1218RTX	TRANSISTOR	[M]
Q803, 804	2SD592NCR	TRANSISTOR	[M]
Q805, 806	DTA143EUT107	TRANSISTOR	[M]
Q807, 808	2SB621A-R	TRANSISTOR	[M]
Q809-812	DTC143EUT107	TRANSISTOR	[M]
Q901, 902	DTA113ZSATP	TRANSISTOR	[M]
		DIODE(S)	
D301	MA110TX	DIODE	[M]
D609	MA723TA	DIODE	[M]
D610⚠	MTZJ9R1BTA	DIODE	[M]
D612⚠	MTZJ5R6BTA	DIODE	[M]
D613	MA723TA	DIODE	[M]
D616	MA165	DIODE	[M]
D705, 706	MA110TX	DIODE	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
D707⚠	MTZJ5R1BTA	DIODE	[M]
D708-710	MA110TX	DIODE	[M]
D901	LNJ201LPQJA	L. E. D.	[M]
D904	MA165	DIODE	[M]
D905	SPR505MDTT	L. E. D.	[M]
D906	MA165	DIODE	[M]
D907	SPR505MDTT	L. E. D.	[M]
D911	LNJ201LPQJA	L. E. D.	[M]
D914	LNJ201LPQJA	L. E. D.	[M]
D916-921	LNH801TPS0A1	L. E. D.	[M]
D951	MA165	DIODE	[M]
D971	MA165	DIODE	[M]
		VARIABLE RESISTOR(S)	
VR101-104	EVNDCAA03B24	V. R	[M]
VR801-803	EVNDCAA03B53	V. R	[M]
		COIL(S)	
L201, 202	ELELN103KA	COIL	[M]
L301	RL08B006-K	COIL	[M]
L302	RLQZB101KT-D	COIL	[M]
L701	RLQA100JT-Y	COIL	[M]
L702	RLBN102V-Y	COIL	[M]
		OSCILLATOR(S)	
X701	EF0EC8004T4	OSCILLATOR	[M]
		SWITCH(ES)	
S900-907	EVQ21405R	SW	[M]
S909-915	EVQ21405R	SW	[M]
S951	RSH1A018-1U	SW	[M]
S952, 953	RSH1A019-2U	SW	[M]
S971	RSH1A018-1U	SW	[M]
S972-976	RSH1A019-2U	SW	[M]
		CONNECTOR(S)	
CN601	RJS2A5519	CONNECTOR(19P)	[M]
CN901-1, 2	RJS1A6604	CONNECTOR(4P)	[M]
CN601A	RJT077K20	CONNECTOR(20P)	[M]
CN601B	RJU077K20	CONNECTOR(20P)	[M]
CP101, 102	RJS1A6805	CONNECTOR(5P)	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
CP901, 902	RJT071H09A	CONNECTOR (9P)	[M]
CS951	RJU071H09M	CONNECTOR (9P)	[M]
CS971	RJU071H09M	CONNECTOR (9P)	[M]
		EARTH TERMINAL (S)	
E1	SNE1004-2	EARTH TERMINAL	[M]
		COMPONENT COMBINATION (S)	
Z971	EXBF7L355SYV	COMPONENT COMBINATION	[M]

Resistors and Capacitors

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

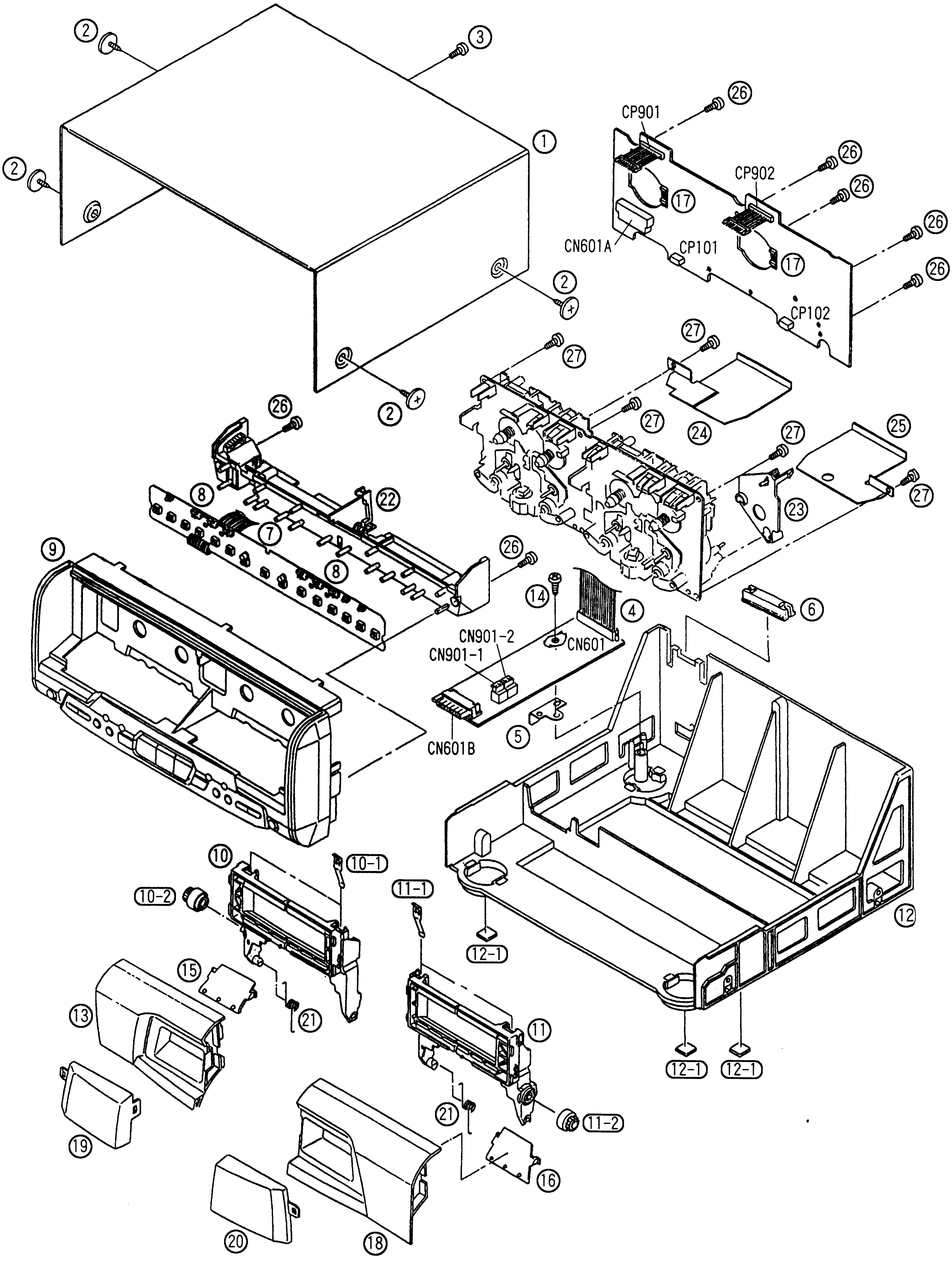
Ref. No.	Part No.	Values & Remarks
		RESISTORS
R101, 102	ERJ6GEYJ562V	1/10W 5.6K [M]
R103, 104	ERJ6GEYJ104V	1/10W 100K [M]
R105, 106	ERJ6GEYJ334V	1/10W 330K [M]
R107, 108	ERJ6GEYJ103V	1/10W 10K [M]
R109, 110	ERJ6GEYJ102V	1/10W 1K [M]
R111	ERJ6GEYJ820V	1/10W 82 [M]
R112	ERJ8GEYJ820V	1/8W 82 [M]
R113	ERJ6GEYJ123V	1/10W 12K [M]
R114	ERJ6GEYJ273V	1/10W 27K [M]
R117	ERJ6GEYJ102V	1/10W 1K [M]
R118, 119	ERDS2TJ220T	1/4W 22 [M]
R120	ERJ6GEYJ104V	1/10W 100K [M]
R121, 122	ERJ6GEYJ103V	1/10W 10K [M]
R125	ERJ6GEYJ104V	1/10W 100K [M]
R126	ERJ6GEYJ223V	1/10W 22K [M]
R127	ERJ6GEYJ472V	1/10W 4.7K [M]
R130	ERJ6GEYJ475V	1/10W 4.7M [M]
R131	ERJ6GEYJ334V	1/10W 330K [M]
R132	ERJ6GEYJ273V	1/10W 27K [M]
R133	ERJ6GEYJ333V	1/10W 33K [M]
R134	ERJ6GEYJ392V	1/10W 3.9K [M]
R135	ERJ6GEYJ682V	1/10W 6.8K [M]
R136, 137	ERJ6GEYJ222V	1/10W 2.2K [M]
R138	ERJ6GEYJ472V	1/10W 4.7K [M]
R139, 140	ERJ6GEYJ473V	1/10W 47K [M]
R141	ERJ8GEYJ101V	1/8W 100 [M]
R142	ERJ6GEYJ101V	1/10W 100 [M]
R143	ERDS2TJ101	1/4W 100 [M]
R144	ERJ6GEYJ101V	1/10W 100 [M]
R147-150	ERJ6GEYJ562V	1/10W 5.6K [M]
R151, 152	ERJ6GEYJ104V	1/10W 100K [M]
R153, 154	ERJ6GEYJ681V	1/10W 680 [M]
R157, 158	ERJ6GEYJ223V	1/10W 22K [M]
R207, 208	ERJ6GEYJ473V	1/10W 47K [M]
R209, 210	ERJ6GEYJ102V	1/10W 1K [M]
R211, 212	ERJ6GEYJ103V	1/10W 10K [M]
R213, 214	ERJ6GEYJ332V	1/10W 3.3K [M]
R215, 216	ERJ6GEYJ123V	1/10W 12K [M]
R217, 218	ERJ6GEYJ222V	1/10W 2.2K [M]
R219	ERJ6GEYJ433V	1/10W 43K [M]
R220	ERDS2TJ220T	1/4W 22 [M]
R221, 222	ERJ6GEYJ101V	1/10W 100 [M]
R223, 224	ERJ6GEYJ103V	1/10W 10K [M]
R225, 226	ERJ6GEYJ473V	1/10W 47K [M]
R230, 231	ERJ6GEYJ102V	1/10W 1K [M]
R232	ERJ6GEYJ103V	1/10W 10K [M]
R233, 234	ERJ6GEYJ101V	1/10W 100 [M]
R235, 236	ERJ6GEYJ103V	1/10W 10K [M]
R237	ERDS2TJ220T	1/4W 22 [M]
R301	ERJ6GEYJ103V	1/10W 10K [M]
R302	ERJ6GEYJ182V	1/10W 1.8K [M]
R303	ERJ6GEYJ222V	1/10W 2.2K [M]
R304	ERJ6GEYJ153V	1/10W 15K [M]
R305	ERJ6GEYJ183V	1/10W 18K [M]
R306	ERJ6GEYJ333V	1/10W 33K [M]
R307⚠	ERDS1FVJ2R2T	1/2W 2.2 [M]
R308	ERJ6GEYJ102V	1/10W 1K [M]
R309-311	ERJ6GEYJ472V	1/10W 4.7K [M]
R313	ERDS2TJ1R0	1/4W 1.0 [M]
R603	ERDS2TJ221	1/4W 220 [M]
R605⚠	ERD2FCVJ4R7T	1/4W 4.7 [M]
R607⚠	ERD2FCG100	1/4W 10 [M]
R608, 609	ERDS2TJ101	1/4W 100 [M]
R610	ERDS2TJ152	1/4W 1.5K [M]
R628, 629	ERDS2TJ1R0	1/4W 1.0 [M]
R630	ERQ16NKWR33E	1/6W 0.33 [M]
R632	ERDS2TJ473	1/4W 47K [M]
R701, 702	ERJ6GEYJ103V	1/10W 10K [M]
R703	ERJ6GEYJ562V	1/10W 5.6K [M]
R704	ERJ6GEYJ472V	1/10W 4.7K [M]
R705	ERJ6GEYJ473V	1/10W 47K [M]
R708	ERJ6GEYJ472V	1/10W 4.7K [M]
R710	ERJ6GEYJ102V	1/10W 1K [M]
R711	ERJ6GEYJ104V	1/10W 100K [M]
R712, 713	ERJ6GEYJ683V	1/10W 68K [M]
R714, 715	ERJ6GEYJ473V	1/10W 47K [M]
R718	ERJ8GEYJ683V	1/8W 68K [M]
R720	ERJ6GEYJ683V	1/10W 68K [M]
R721	ERJ6GEYJ472V	1/10W 4.7K [M]
R723, 724	ERJ6GEYJ102V	1/10W 1K [M]
R725, 726	ERJ6GEYJ222V	1/10W 2.2K [M]
R727	ERJ6GEYJ472V	1/10W 4.7K [M]
R728	ERJ6GEYJ103V	1/10W 10K [M]
R729	ERJ6GEYJ472V	1/10W 4.7K [M]
R730	ERJ6GEYJ222V	1/10W 2.2K [M]
R732	ERJ6GEYJ104V	1/10W 100K [M]
R735	ERJ6GEYJ472V	1/10W 4.7K [M]
R738	ERJ6GEYJ102V	1/10W 1K [M]
R739	ERJ6GEYJ272V	1/10W 2.7K [M]
R741	ERJ6GEYJ223V	1/10W 22K [M]
R742	ERJ6GEYJ103V	1/10W 10K [M]
R743	ERJ6GEYJ473V	1/10W 47K [M]
R744	ERJ6GEYJ102V	1/10W 1K [M]
R745	ERJ6GEYJ101V	1/10W 100 [M]
R746	ERJ6GEYJ103V	1/10W 10K [M]
R747	ERJ6GEYJ102V	1/10W 1K [M]
R801	ERJ6GEYJ184V	1/10W 180K [M]
R802	ERJ6GEYJ561V	1/10W 560 [M]
R803, 804	ERJ6GEYJ103V	1/10W 10K [M]
R805	ERJ6GEYJ392V	1/10W 3.9K [M]
R806	ERJ6GEYJ103V	1/10W 10K [M]
R807	ERJ6GEYJ184V	1/10W 180K [M]
R808	ERJ6GEYJ392V	1/10W 3.9K [M]
R809	ERJ6GEYJ822V	1/10W 8.2K [M]
R810, 811	ERJ6GEYJ103V	1/10W 10K [M]
R812	ERJ6GEYJ561V	1/10W 560 [M]
R813, 814	ERJ6GEYJ471V	1/10W 470 [M]
R817	ERJ6GEYJ105	1/10W 1M [M]
R818	ERDS2TJ2R2T	1/4W 2.2 [M]
R819	ERJ6GEYJ105	1/10W 1M [M]
R820	ERDS2TJ2R2T	1/4W 2.2 [M]
R821	ERJ6GEYJ102V	1/10W 1K [M]
R822	ERJ6GEYJ101V	1/10W 100 [M]
R823, 824	ERJ6GEYJ561V	1/10W 560 [M]
R900	ERDS2TJ821	1/4W 820 [M]
R901	ERDS2TJ102	1/4W 1K [M]
R902	ERDS2TJ122	1/4W 1.2K [M]
R903	ERDS2TJ152	1/4W 1.5K [M]
R904	ERDS2TJ182	1/4W 1.8K [M]
R905	ERDS2TJ222	1/4W 2.2K [M]
R906	ERDS2TJ332	1/4W 3.3K [M]
R907	ERDS2TJ472	1/4W 4.7K [M]
R908	ERDS2TJ682T	1/4W 6.8K [M]
R909	ERDS2TJ123	1/4W 12K [M]
R910	ERDS2TJ223	1/4W 22K [M]
R911	ERDS2TJ683	1/4W 68K [M]
R912	ERDS2TJ561	1/4W 560 [M]
R914-917	ERDS2TJ102	1/4W 1K [M]
R918	ERDS2TJ391	1/4W 390 [M]
R919	ERDS2TJ561	1/4W 560 [M]
R922	ERDS2TJ391	1/4W 390 [M]
R923	ERDS2TJ561	1/4W 560 [M]
R924	ERDS2TJ821	1/4W 820 [M]
R925	ERDS2TJ102	1/4W 1K [M]
R926, 927	ERDS2TJ473	1/4W 47K [M]
R928, 929	ERDS2TJ331	1/4W 330 [M]
R930, 931	ERDS2TJ152	1/4W 1.5K [M]
R951	ERDS2TJ681	1/4W 680 [M]
R953, 954	ERDS2TJ393	1/4W 39K [M]
R971	ERDS2TJ681	1/4W 680 [M]
R973, 974	ERDS2TJ393	1/4W 39K [M]
		CHIP JUMPERS

Ref. No.	Part No.	Values & Remarks
RJ504-506	ERJ6GEY0R00	CHIP JUMPER
RJ507	ERJ8GEY0R00V	CHIP JUMPER
		CAPACITORS
C101, 102	ECUV1H681KBN	50V 680P [M]
C103, 104	ECUV1H821KBN	50V 820P [M]
C109, 110	ECQB1H183JF3	50V 0.018U [M]
C111, 112	ECEA0JKA470B	6.3V 47U [M]
C113, 114	ECEA1EKA4R7B	25V 4.7U [M]
C115, 116	ECUV1H471KBN	50V 470P [M]
C117, 118	ECUV1H331KBN	50V 330P [M]
C119, 120	ECEA1HKA010B	50V 1U [M]
C123, 124	ECEA1EKA4R7B	25V 4.7U [M]
C125, 126	ECUV1H332KBN	50V 3300P [M]
C129	ECEA1AKA220B	10V 22U [M]
C130	RCE1AKA101BG	10V 100U [M]
C131-134	ECUV1H471KBN	50V 470P [M]
C135, 136	ECEA1HKA010B	50V 1U [M]
C137	ECEA1HKA0R1B	50V 0.1U [M]
C138	ECUV1E473KBN	25V 0.047U [M]
C139	ECEA0JKA470B	6.3V 47U [M]
C140	RCE1CKA100BG	16V 10U [M]
C141	ECEA1HKA010B	50V 1U [M]
C142	ECUV1E104ZFN	25V 0.1U [M]
C143, 144	ECUV1H471KBN	50V 470P [M]
C150	RCE1AKA101BG	10V 100U [M]
C203, 204	ECEA1EKA4R7B	25V 4.7U [M]
C205, 206	ECEA1HKA010B	50V 1U [M]
C207, 208	ECUV1H271KBN	50V 270P [M]
C211, 212	ECUV1H152KBN	50V 1500P [M]
C213, 214	ECEA1EKA4R7B	25V 4.7U [M]
C215, 216	ECEA1HKA010B	50V 1U [M]
C217, 218	ECEA1HKAR68B	50V 0.68U [M]
C219	ECEA1CKA101B	16V 100U [M]
C220	RCE1ARC471BG	10V 470U [M]
C221, 222	ECEA1HKAR68B	50V 0.68U [M]
C223	ECEA1EKA4R7B	25V 4.7U [M]
C225, 226	ECEA1EKA4R7B	25V 4.7U [M]
C239, 240	ECUV1H681KBN	50V 680P [M]
C241	ECUV1H103KBN	50V 0.01U [M]
C243, 244	ECUV1H682KBN	50V 6800P [M]
C302	ECEA2AN2R2SB	100V 2.2U [M]
C303	ECQP2E682JZT	250V 6800P [M]
C304	RCE1AKA101BG	10V 100U [M]
C305	ECEA1HKA0R1B	50V 0.1U [M]
C306	ECQB1H393JF3	50V 0.039U [M]
C307	ECUV1H102KBN	50V 1000P [M]
C308	ECUV1H332KBN	50V 3300P [M]
C309	ECEA0JKA470B	6.3V 47U [M]
C310, 311	ECUV1H103KBN	50V 0.01U [M]
C323	ECUV1H102KBN	50V 1000P [M]
C606	ECA1EM101B	25V 100U [M]
C607	ECA1AM471B	10V 470U [M]
C609	ECBT1E103ZF	25V 0.01U [M]
C611	ECEA1HKA010B	50V 1U [M]
C613	RCE1AKA470BG	10V 47U [M]
C614	ECBT1E103ZF	25V 0.01U [M]
C701	ECUV1H103KBN	50V 0.01U [M]
C702	ECEA0JKA101B	6.3V 100U [M]
C705	ECUV1E103ZFN	25V 0.01U [M]
C706	RCE1HKA3R3BG	50V 3.3U [M]
C707	ECUV1E103ZFN	25V 0.01U [M]
C901	ECBT1H471KB5	50V 470P [M]
C902	ECBT1H104ZF5	50V 0.1U [M]
C903	ECBT1H471KB5	50V 470P [M]

■ Replacement Parts List (Cabinet, Mechanism and Jig/Tool)

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RKM0290-K	CABINET	[M]
2	RHD30007-K1	SCREW	[M]
3	XTBS3+10JFZ1	SCREW	[M]
4	REX0851	WIRE ASS'Y(W601)	[M]
5	RMA0969	EARTH PLATE	[M]
6	RMN0432	HOLDER	[M]
7	REZ0886	FLAT CABLE(W901)	[M]
8	RMR1008-Q	LED HOLDER	[M]
9	RFKGSEH60XGK	FRONT PANEL ASS'Y	[M]
10	RFKLACH330AK	CASSETTE HOLDER ASS'Y·DECK1	[M]
10-1	RUS757ZA	SPRING	[M]
10-2	RDG0129-1	GEAR	[M]
11	RFKLACH430GB	CASSETTE HOLDER ASS'Y·DECK2	[M]
11-1	RUS757ZA	SPRING	[M]
11-2	RDG0129-1	GEAR	[M]
12	RFKHSEH60E-K	CHASSIS ASS'Y	[M]
12-1	SHG1654	RUBBER	[M]
13	RFKLSEH60E-K	CASSETTE PANEL ASS'Y	[M]
14	XTBS3+8JFZ1	SCREW	[M]
15	RGL0349-Q	LENS 1	[M]
16	RGL0350-Q	LENS 2	[M]
17	RJR0113	CONNECTOR(CP305, 306/4P)	[M]
18	RKF0507-K	CASSETTE PANEL (DECK 2)	[M]
19	RKW0489-Q	WINDOW 1	[M](E)
19	RKW0489A-Q	WINDOW 1	[M](EP)
20	RKW0490-Q	WINDOW 2	[M](E)
20	RKW0490A-Q	WINDOW 2	[M](EP)
21	RMB0474	SPRING	[M]
22	RMQ0577A-2	FRAME	[M]
23	RMR0909-X	P.C.B. SUPPORTER	[M]
24	RSC0453	SHIELD PLATE 1	[M]
25	RSC0454	SHIELD PLATE 2	[M]
26	XTBS26+8J	SCREW	[M]
27	XTB3+10JFZ	SCREW	[M]
		MECHANISM PARTS	
101	RED0037	HEAD BLOCK(R/P)	[M]
101-1	RHD17015	SCREW	[M]
102	RED0038	HEAD BLOCK(P.B)	[M]
102-1	RHD17015	SCREW	[M]
103	RDG0300	REEL TABLE ASS'Y	[M]
104	RDG0301	GEAR	[M]
105	RDK0026	GEAR	[M]
107	RDV0033-1	BELT 1	[M]
108	RDV0034	BELT 2	[M]
110	RUW147ZA	SPRING	[M]
111	RMB0400	SPRING	[M]
112	RMB0403	SPRING	[M]
113	RMB0404	SPRING	[M]
114	RMB0406	SPRING	[M]
115	RMB0408	SPRING	[M]
116	RML0370	LEVER	[M]
117	RML0371	LEVER	[M]
118	RML0372	LEVER	[M]
119	RML0374	LEVER	[M]
120	RMM0131	ROD	[M]
121	RMM0133	ROD	[M]
122	RMQ0519	REELCAP	[M]
123	RMS0398-1	SHAFT	[M]
124	RSJ0003	PLUNGER ASS'Y	[M]
125	RUS609ZC	SPRING	[M]
126	RXF0049	FLYWHEEL ASS'Y	[M]
127	RXF0050	FLYWHEEL ASS'Y	[M]
128	RXG0040	GEAR	[M]
129	RMK0283	SUB CHASSIS	[M]
130	RXL0124	PINCH ROLLER ASS'Y(F)	[M]
130-1	RMB0401	SPRING	[M]
131	RXL0125	PINCH ROLLER ASS'Y(R)	[M]
131-1	RMB0402	SPRING	[M]
132	RXL0126	ARM GEAR	[M]
133	RXQ0412	CHASSIS ASS'Y	[M]
133-1	RMB0405	SPRING	[M]
133-2	RMM0132	ROD	[M]
134	REM0055-1	MOTOR ASS'Y	[M]
135	RHD26022	SCREW	[M]
136	XTW2+5L	SCREW	[M]
137	XTW26+10S	SCREW	[M]
138	XYC2+JF17	SCREW	[M]
140	RFKJSCH770EK	MAIN CHASSIS ASS'Y	[M]
		JIG/TOOL(S)	
SA1	QZZCFM	TEST TAPE	[M]
SA2	QZZCWAT	TEST TAPE	[M]
SA3	QZZCRA	TEST TAPE	[M]
SA4	QZZCRX	TEST TAPE	[M]
SA5	QZZCRZ	TEST TAPE	[M]

■ Cabinet Parts Location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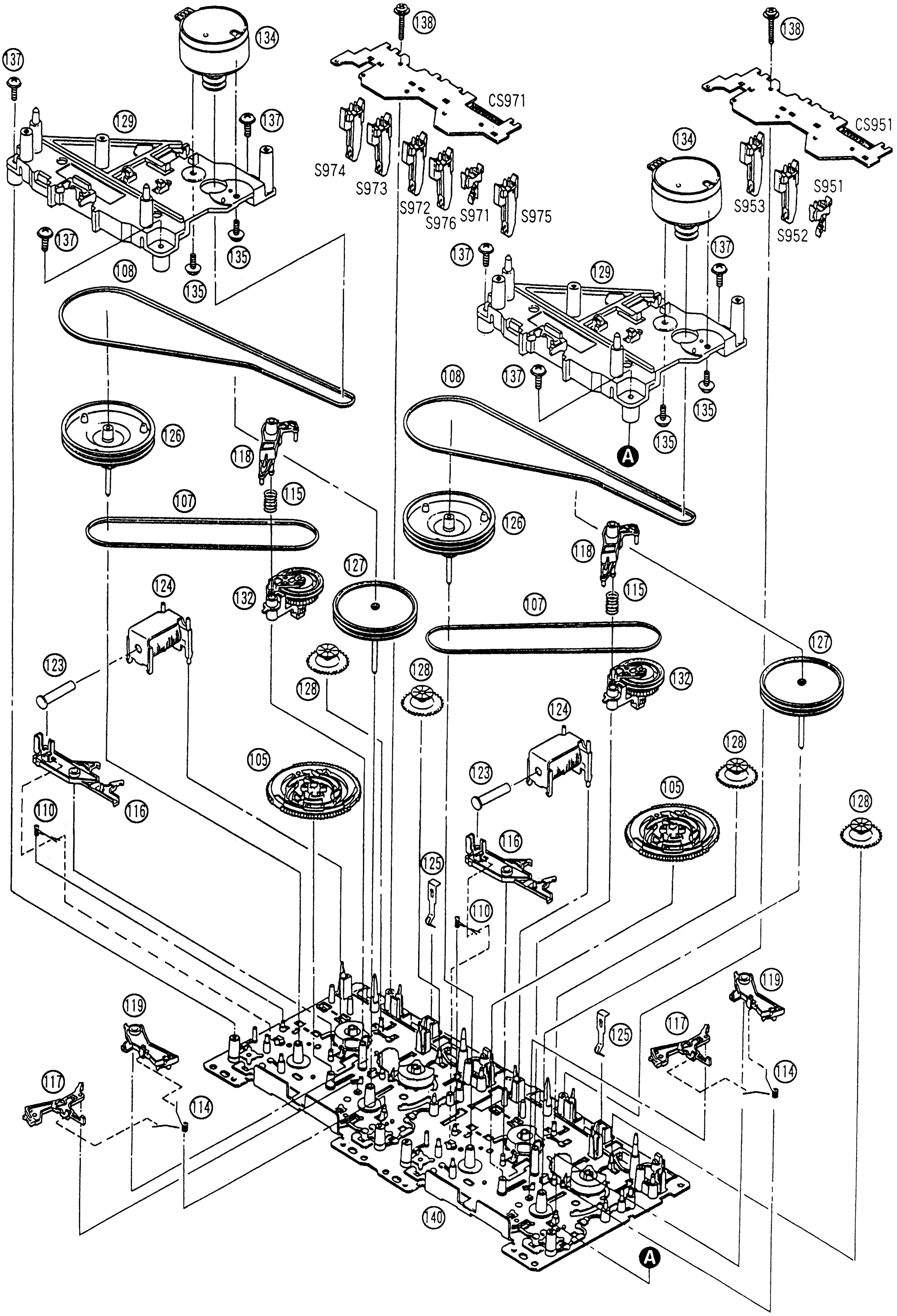
CP101
CP102
CN601A
CN601
CN601B
CN901-1
CN901-2

■ Mechanism Parts Location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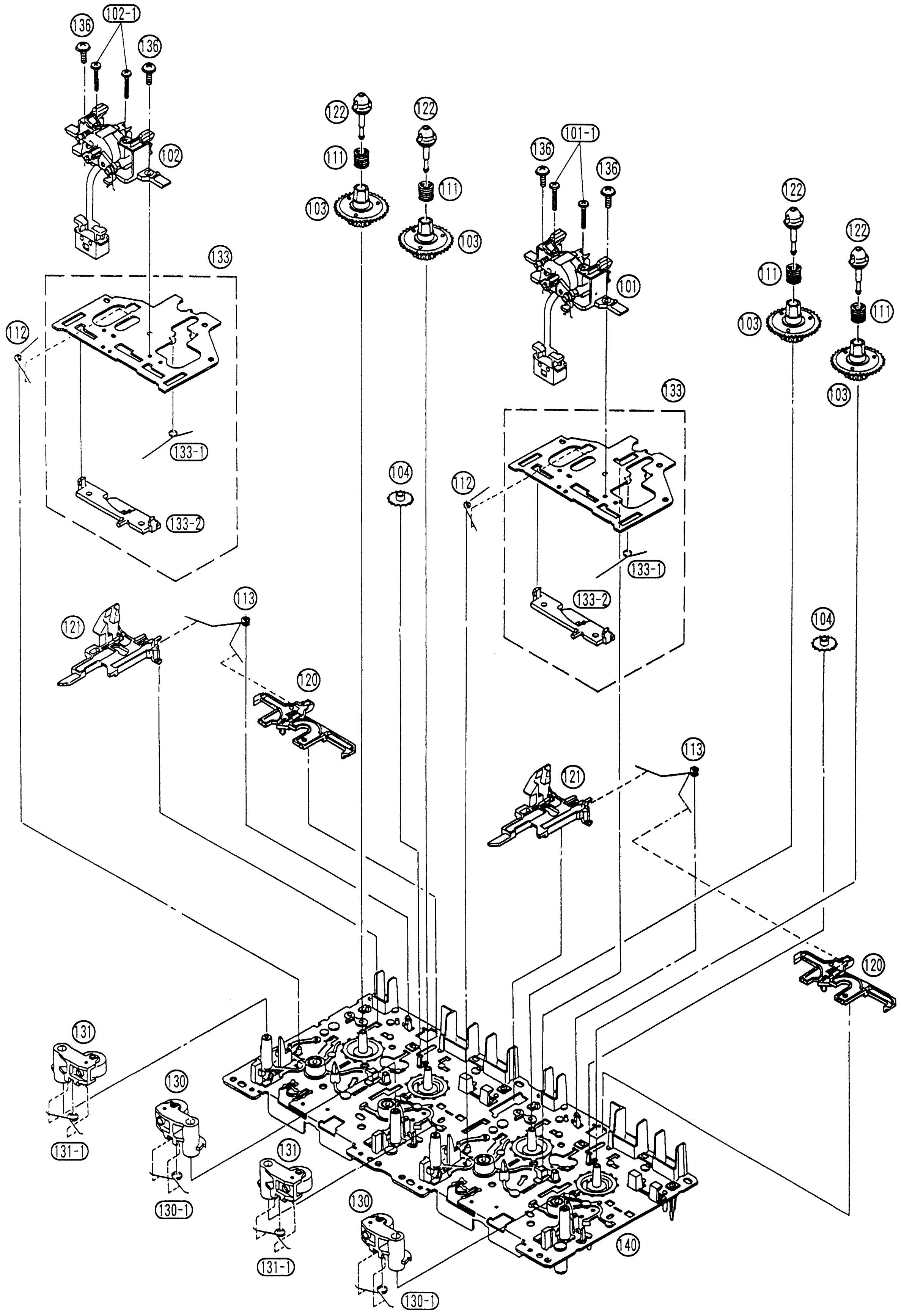
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130-1
140

Printed in Japan
F970307500HS/KH

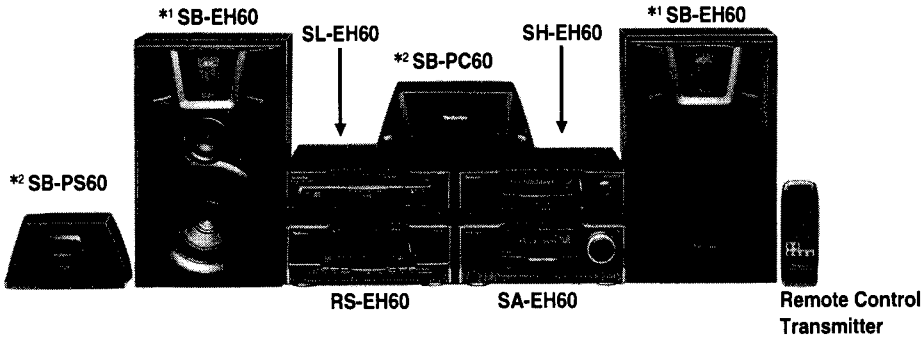
ORDER NO. AD9703047C8

Service Manual

Sound Processor

Sound Processor
SH-EH60

System: SC-EH60



Colour
(K) .... Black

Area
(E)/(EP) ... Europe, Russia
(GC) .... Asia, Latin America, Middle East, Africa and Oceania.

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

DOLBY SURROUND PRO • LOGIC

Specifications

EQ/SFP Section

MANUAL GEQ:	
Center frequency;	100 Hz, 315 Hz, 1 kHz, 3.15 kHz, 10 kHz
Level control;	± 3, 6, 9 dB
EQ SPACE mode	
3 modes;	HALL, CLEAR, HEAVY
Acoustic Image Selector:	36 pattern

Pre-amplifier Section

Input sensitivity/impedance:	
VCR;	250 mV/15 kohm
VDP;	250 mV/15 kohm
Output level:	
VCR RECOUT;	150 mV/1.5 kohm

DOLBY PRO LOGIC Section

PRO LOGIC mode:	SURROUND, 3 STEREO
CENTER mode:	NORMAL, WIDE, PHANTOM
DELAY TIME:	20 ms (Fixed)

Spectrum analizer Section

Display mode:	NORMAL, PEAKHOLD, AUROLA

General

Dimensions:	287 (W)/89 (H)/273.5 (D) mm
Weight:	1.1 kg

Note: Specifications are subject to change without notice.
Weight and dimensions are approximate.

System/SC-EH60:

Sound processor: SH-EH60,	Tuner/Amplifier: SA-EH60,	Compact disc changer: SL-EH60,	Cassette deck: RS-EH60,
Front speakers: *1 SB-EH60,	Center speaker: *2 SB-PC60,	Surround speakers: *2 SB-PS60	

Notes: ∗1 ...For (E)/(EP) area : Made in PAES For (GC) area : Made in MESA
∗2 ...Made in MESA

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics®

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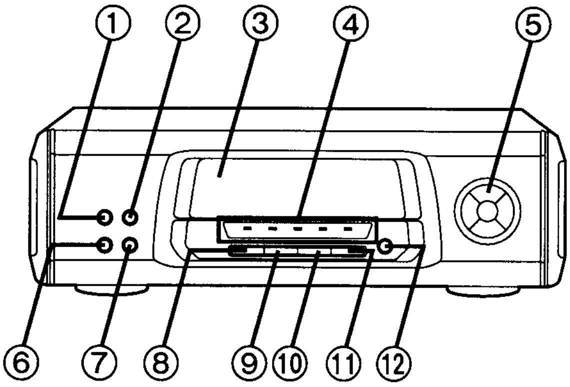
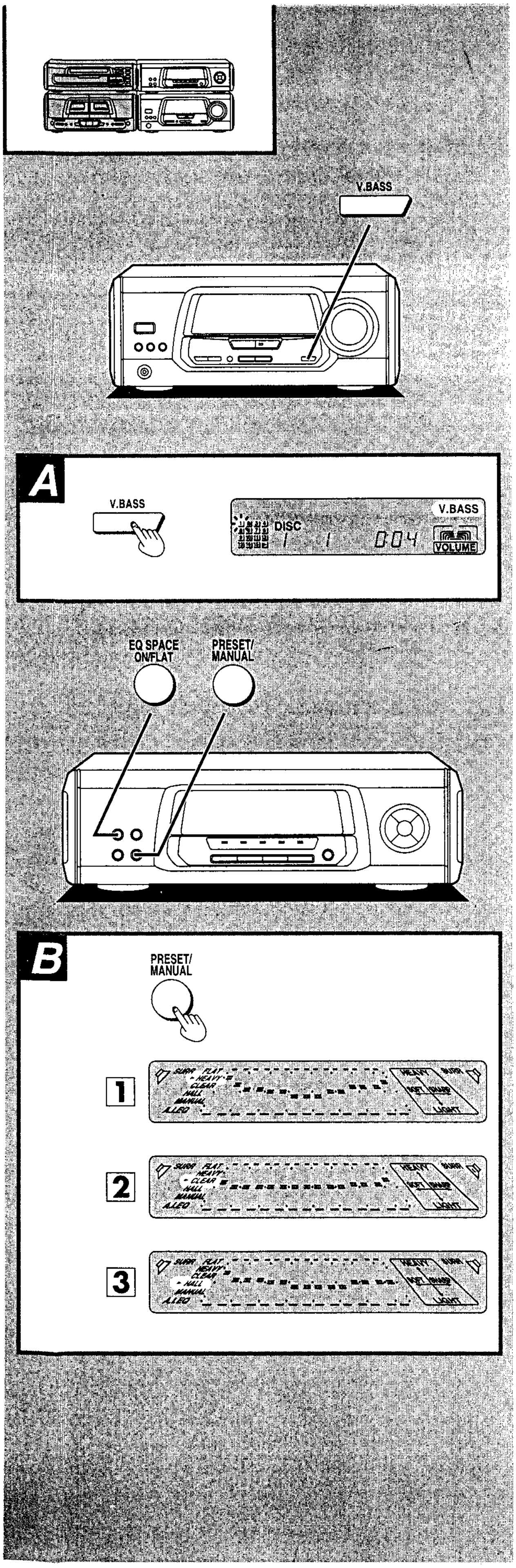
NOTE:
Refer to the service manual for Model No. SA-EH60 (ORDER No. AD9703048C8) for information on "Accessories", "Connections", "Installation" and "Packaging".

■ Location of Controls



① EQ SPACE on/flat button (EQ SPACE ON/FLAT)
② Display mode select/demonstration button (DISP MODE/-DEMO)
③ Display
④ DOLBY PRO LOGIC indicators (SURROUND, 3 STEREO, NORMAL, WIDE, PHANTOM)
⑤ Multi control buttons (MULTI CONTROL, ▶ , ▲ , ◀ , ▼)
⑥ Acoustic image EQ button (ACOUSTIC IMAGE EQ)
⑦ EQ SPACE preset/manual select button (PRESET/MANUAL)
⑧ DOLBY PRO LOGIC on/off button (DOLBY PRO LOGIC, OFF/ON)
⑨ DOLBY PRO LOGIC mode select button (MODE)
⑩ DOLBY PRO LOGIC test signal button (TEST)
⑪ DOLBY PRO LOGIC center mode button (CENTER MODE)
⑫ 3D PRESENCE select button

■ Changing the Tone



To listen with augmented bass (V. BASS) A

Press V. BASS.

To cancel, press V. BASS once again.

Note

You cannot record with the V. BASS effect.

"V. BASS" is only effective on sounds which can be heard through the speakers or headphones.

Using the internal sound quality B

Press PRESET/MANUAL to select the desired mode.

Each time you press PRESET/MANUAL, EQ and SPACE modes will be switched as follows.

HEAVY→CLEAR→HALL→MANUAL

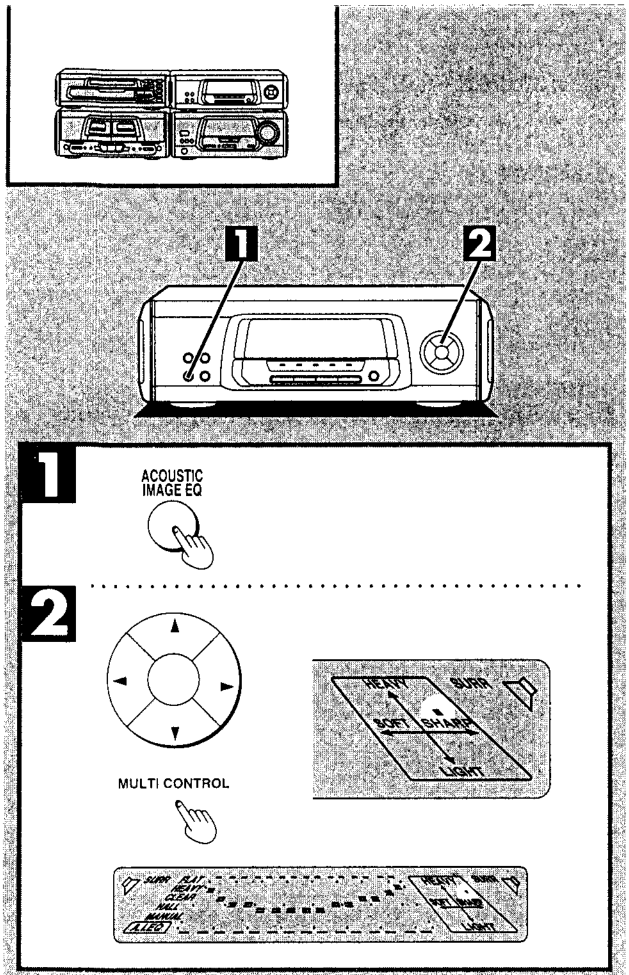
1 **HEAVY:**	Use to add "punch" to rock and other music.
2 **CLEAR:**	Use to clarify the treble range of jazz, etc.
3 **HALL:**	Use to impart a deep bass and spread which will make you feel as if you were in a large concert hall.
4 **MANUAL:**	Refer to the "Finer sound quality changes" section on page 29.

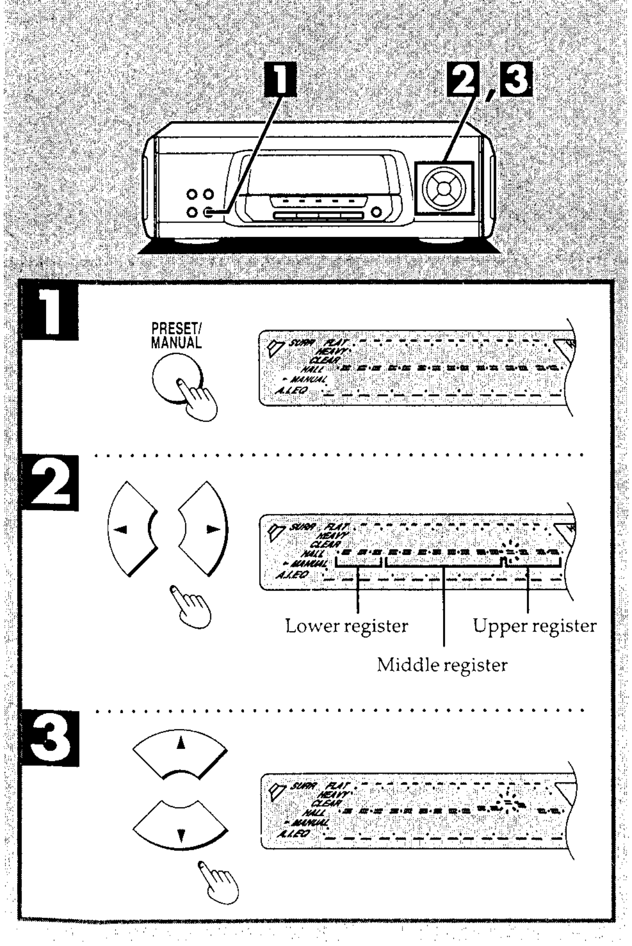
To cancel the EQ SPACE effect

Press EQ SPACE ON/FLAT to select "FLAT".

Notes

- Recordings cannot be made in the HALL, CLEAR, HEAVY or MANUAL modes.
- Recording during use of sound quality operation will cause the "HALL", "CLEAR", "HEAVY" and "MANUAL" indicators to disappear and light again when recording is completed.





Using the acoustic image EQ

This function allows easy creation of sounds closer to what you imagine.
The figure shows an example where the sound quality has been adjusted to HEAVY level 2 and SHARP level 3.

1 Press ACOUSTIC IMAGE EQ.

2 Press the ▲ ▼ ◀ ▶ buttons to move the cursor to the desired music image.

HEAVY (▲): When a heavier sound is desired
LIGHT (▼): When a lighter sound is desired
SOFT (◀): When a softer sound is desired
SHARP (▶): When a sharper sound is desired

To cancel the ACOUSTIC IMAGE EQ effect
Press EQ SPACE ON/FLAT to select "FLAT".

Notes

- Sounds can be made to fit a total of 36 images.
- The resulting adjustment is automatically stored in memory. When the ACOUSTIC IMAGE EQ is pressed again, the image last selected is automatically selected.

Finer sound quality changes

Finer sounds can be created by selecting MANUAL.

1 Press PRESET/MANUAL to select MANUAL.

2 Press ◀ ▶ to select the desired register.

◀: Upper register
▶: Lower register

3 Press ▲ ▼ to adjust the register level.

▲: Increasing the register level
▼: Decreasing the register level

For your reference:

Upper register: includes pipes, strings, cymbals and triangles
- Increasing the upper register: mellows pipes and strings, adds precision and glitter
- Decreasing the upper register: quiets music, rids music of its "stretch"

Middle register: vocals (voice)
- Increasing the middle register: gives strength and punch to music brings voices forward, brightens sound
- Decreasing the middle register: quiets music, pulls voices back, softens intense sounds

Lower register: includes bass and drums
- Increasing the lower register: stabilizes heavy and low sounds, swells low sounds
- Decreasing the lower register: decreases noise in lower sounds, reduces muffled sounds

Notes

- The resulting adjustment is automatically stored in memory. When the MANUAL mode is selected again, the sound quality last selected is automatically played back.
- The register can be manually adjusted at 5 individual points along the 100 Hz~10 kHz frequency range.

■ Enjoying Stereophonics

This function emphasizes the center position, naturally widening the left and right, for a taste of natural stereophonic feeling regardless of listening position.

Press 3D PRESENCE. A
3D PRESENCE indicator will light.

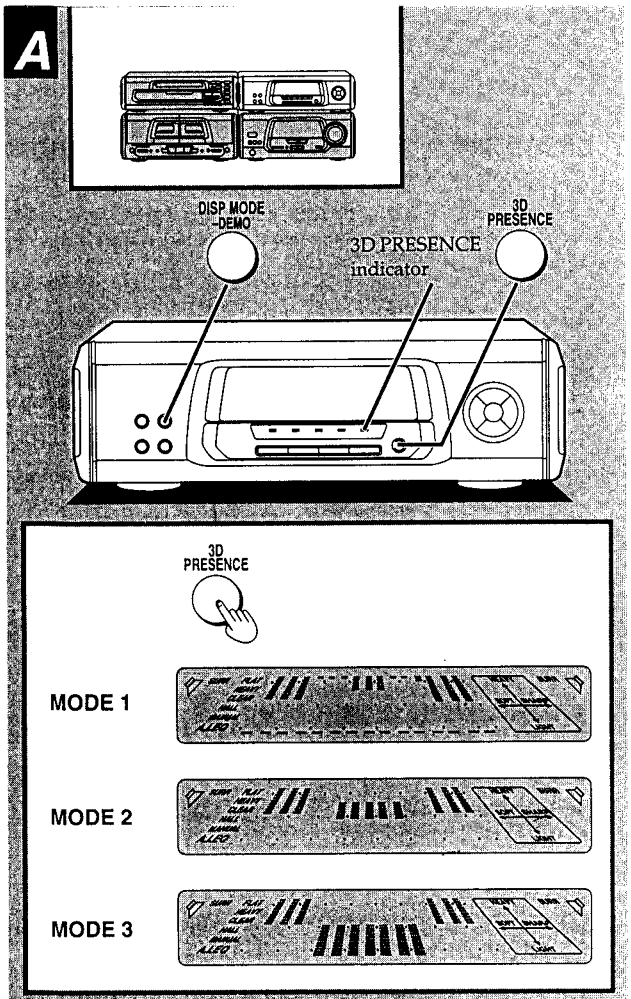
Each time the button is pressed the display on the sound processor changes as follows.
MODE 1→MODE 2→MODE 3→OFF

To cancel, press 3D PRESENCE to select OFF.
(3D PRESENCE indicator goes out.)

Notes

- The 3D PRESENCE effect cannot be recorded.
- "3D PRESENCE" is only effective on sounds which can be heard through the speakers.
  When using the headphones, please switch off this function.

A



■ Convenient Functions

To mute the volume

B

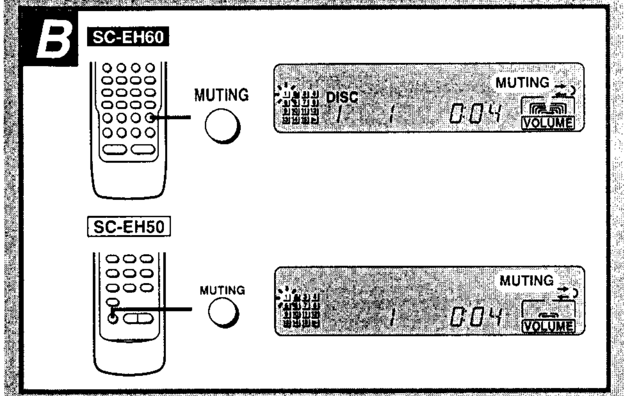
This feature is convenient when you have a telephone call, etc.

by remote control only

Press MUTING.
"MUTING" will light.
Sound remains muted when you put the stereo on standby.
To cancel, press MUTING once again. ("MUTING" goes out.)

To cancel from the tuner/amplifier, reduce the volume level to the minimum position (-- dB) and then reset to the desired volume.

B



■ Concerning the Display

The sound processor shows the level of each sound range with the three types of display described belows. C

Press DISP MODE/–DEMO momentarily.
The spectrum display will change as follows.

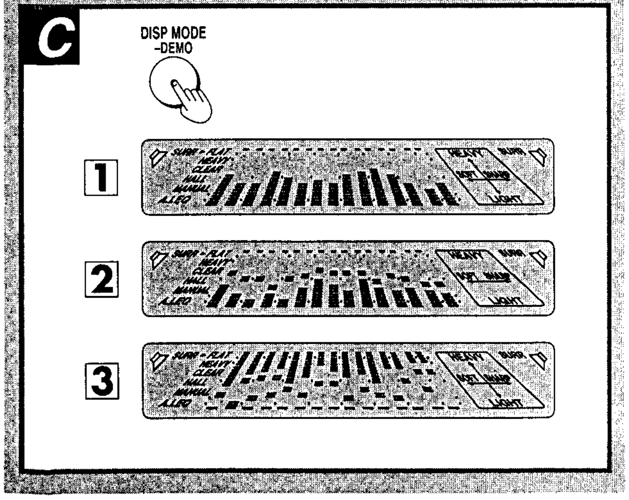
1 Normal display
This display indicates the strength of the sound in each tonal range.

2 Peak-hold display
The peak sound value of each sound range is held on the display for about one second after occurs.

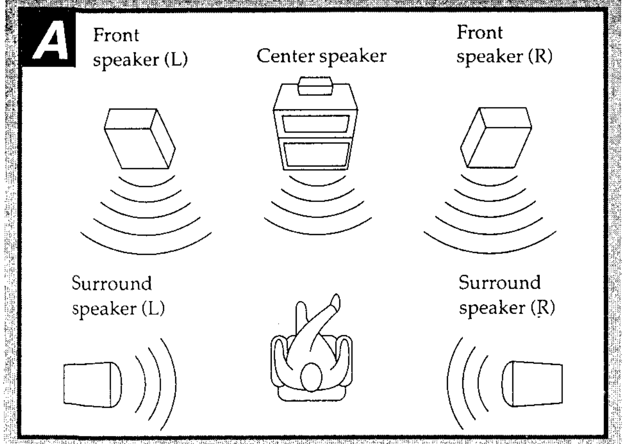
3 Aurora display
The peak sound value of each sound range is displayed in inverted form.

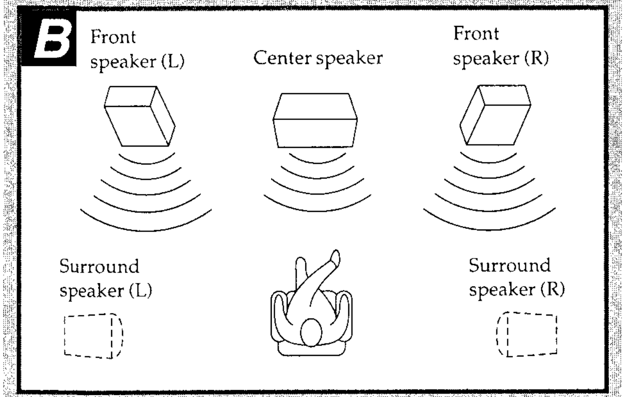
For your reference:
The demonstration function starts when DISP MODE/-DEMO is held down.

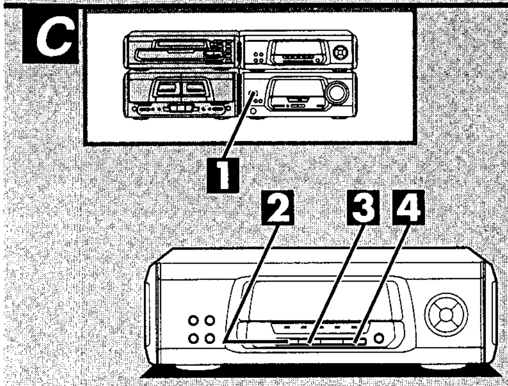
C

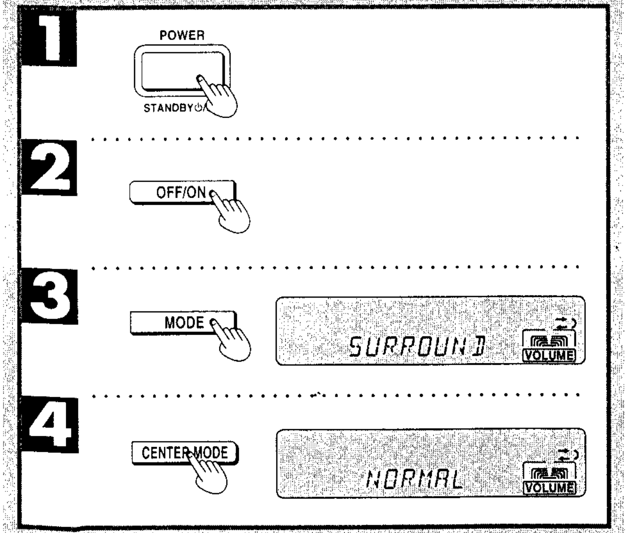


■ Enjoying Sound with DOLBY PRO LOGIC


A
Front speaker (L)
Center speaker
Front speaker (R)
Surround speaker (L)
Surround speaker (R)


B
Front speaker (L)
Center speaker
Front speaker (R)
Surround speaker (L)
Surround speaker (R)




1
POWER
STANDBY⏻
2
OFF/ON
3
MODE
SURROUND
VOLUME
4
CENTER MODE
NORMAL
VOLUME

By combining front, center and surround speakers, you can enjoy the SURROUND mode which conveys a feeling of presence or the 3 STEREO mode which conveys a feeling of orientation.

SURROUND A

By reproducing the feeling of depth and movement of sound, video software or compact discs recorded with Dolby Surround provide the listener with the sensations of a movie theater.

To enjoy SURROUND, be sure to connect the surround speakers.

3 STEREO B

You can enjoy audio/video sources with clear sound, more presence and enhanced orientation. 3 STEREO can be used with sources not recorded in DOLBY SURROUND.
To enjoy 3 STEREO, be sure to connect the center speaker.

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DOLBY, the double-D symbol ◘◘ and "PRO LOGIC" are trademarks of Dolby Laboratories Licensing Corporation.

Setting the center mode C

For Dolby Pro Logic systems, center mode setting is necessary to play back bass sounds effectively. Set the center mode in accordance with the size of your center speaker.

1 Switch on the power.

2 Press DOLBY PRO LOGIC OFF/ON to select ON.

3 Press MODE to select "SURROUND" or "3 STEREO".

Each time you press the button, the display will change as follows:
SURROUND→3 STEREO
↑______________|

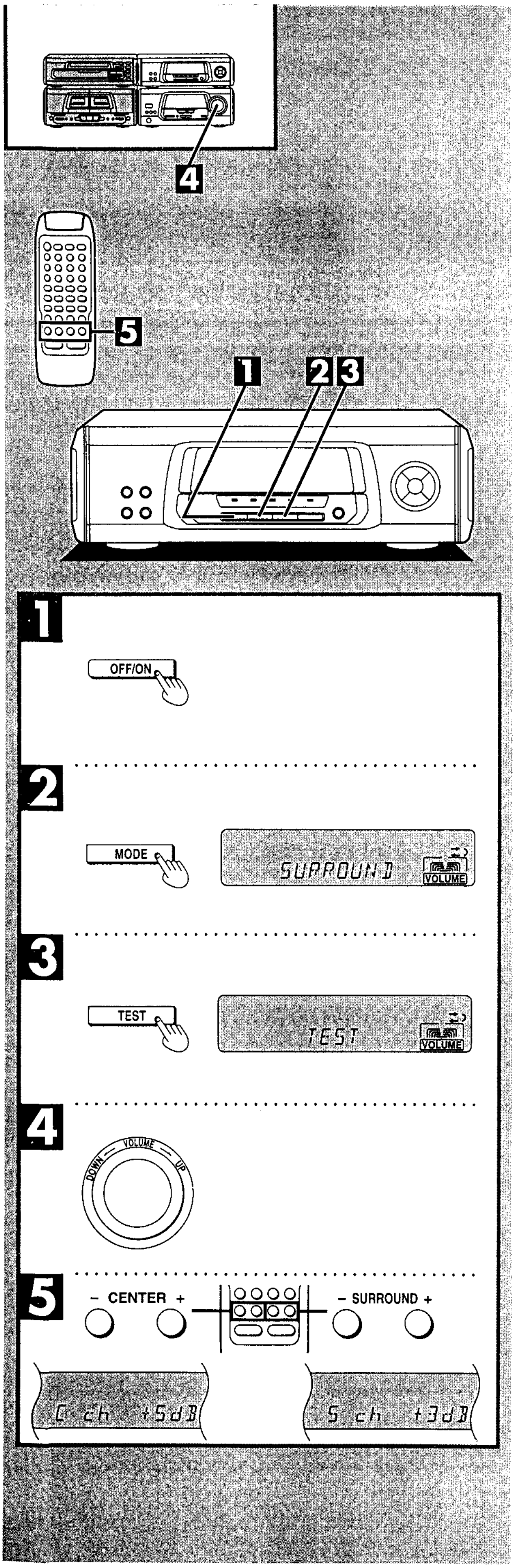
4 Press CENTER MODE to select "NORMAL" mode.

Each time you press the button, the display will change as follows:
NORMAL→WIDE→PHANTOM
↑__________________|

Note
"PHANTOM" will not be displayed when you select "3 STEREO" in step 3.

NORMAL:
When the center speaker is smaller than the front speakers
WIDE:
When the center speaker is the same size or larger than the front speakers
PHANTOM: **SURROUND only**
When no center speaker is connected

Note
In the PHANTOM mode, the sound which would have been sent to the center speaker will be divided equally between both the left and right front speakers.



Adjusting speaker output level

In order to reproduce the movement of the sound and its clear orientation, it is important to adjust the output level of each speaker. Adjust output to the correct levels while listening to the test signal.

1 Press DOLBY PRO LOGIC OFF/ON to select ON.

2 Press MODE to select "SURROUND" or "3 STEREO".

Each time you press the button, the display will change as follows:

SURROUND→3 STEREO
↑_______________|

3 Press TEST to output a test signal.

The test signal is emitted in the following order:

For SURROUND mode

Front speaker (left)————→Center speaker
↑ ↓
Surround speakers (left, right)←—Front speaker (right)

Note

The test signal is not emitted from the center speaker when the center mode is on PHANTOM.

For 3 STEREO mode

Front speaker (left)→Center speaker→Front speaker (right)
↑_______________________________________|

4 Turn VOLUME to set the volume level normally used for enjoying the source.

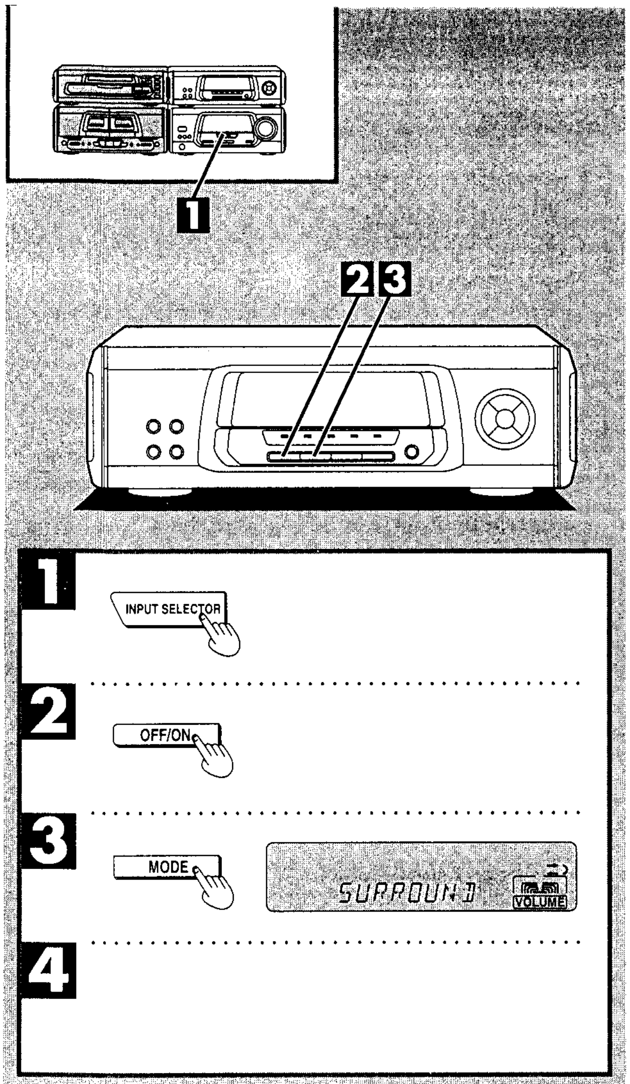
5 Press CENTER (–) or (+) or SURROUND (–) or (+) on the remote control to adjust the output level balance.

Adjust the output level of each speaker from the listening position until they are all identical.
Output levels can be varied within a range of ±12 dB with front speaker output level serving as the zero point.

Notes

- The test signal is output only by the speaker you are now adjusting and does not repeat the sequence until adjustments are complete.
- Remember you cannot adjust the output level of the surround speakers if you selected the 3 STEREO mode in step 2.

To stop the test signal:
Press TEST.



Enjoying with SURROUND or 3 STEREO

Before trying anything, have you set the center mode and adjusted speaker output level?
When viewing a video, turn on the power supply for the TV and set the TV to video mode.

1 Press INPUT SELECTOR to select the desired external source.

Each time you press this button, sound sources will be switched as follows.

TUNER——→CD——→TAPE
↑ ↓
PHONO←VDP←VCR←EXT

These indications correspond to terminals on the rear panel of the sound processor or tuner/amplifier. Switch the displayed indication to the source you want to use.

2 Press DOLBY PRO LOGIC OFF/ON to select ON.

3 Press MODE to select "SURROUND" or "3 STEREO".

4 Start the desired source.

To operate external sources, refer to the operating instructions provided with the specific unit.

Note

When using SURROUND, use software recorded in Dolby Surround.

To turn off the DOLBY PRO LOGIC systems:

Press DOLBY PRO LOGIC OFF/ON to select "OFF".

Note

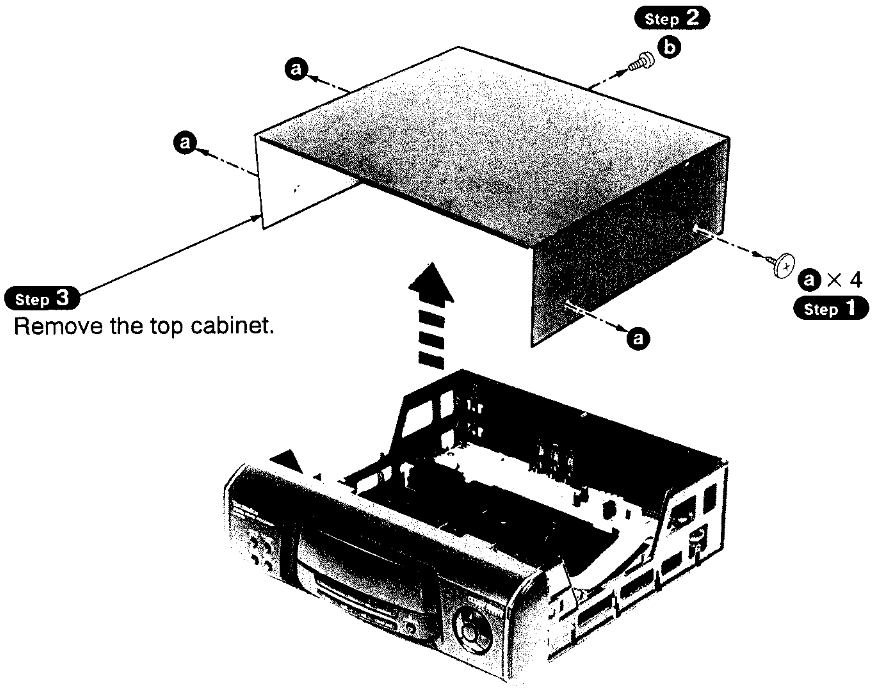
You cannot record acoustical effects produced in the SURROUND and 3 STEREO modes.

■ Operation Checks and Main Component Replacement Procedures

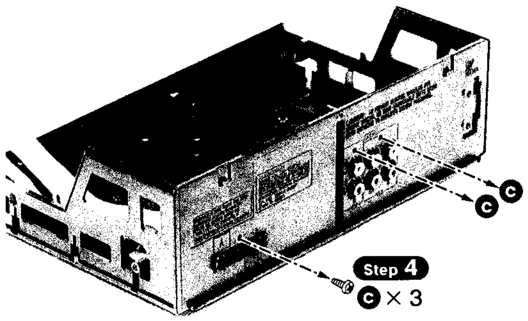
NOTE

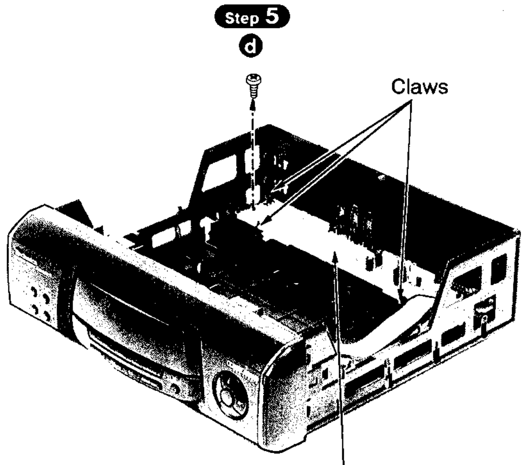
1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

1. Checking for the IN/OUT terminal P.C.B.



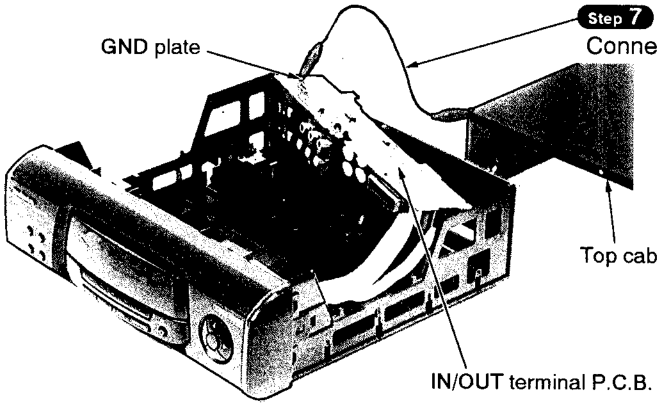
Step 3 Remove the top cabinet.





Step 6 Release the 3 claws, and then remove the IN/OUT terminal P.C.B..

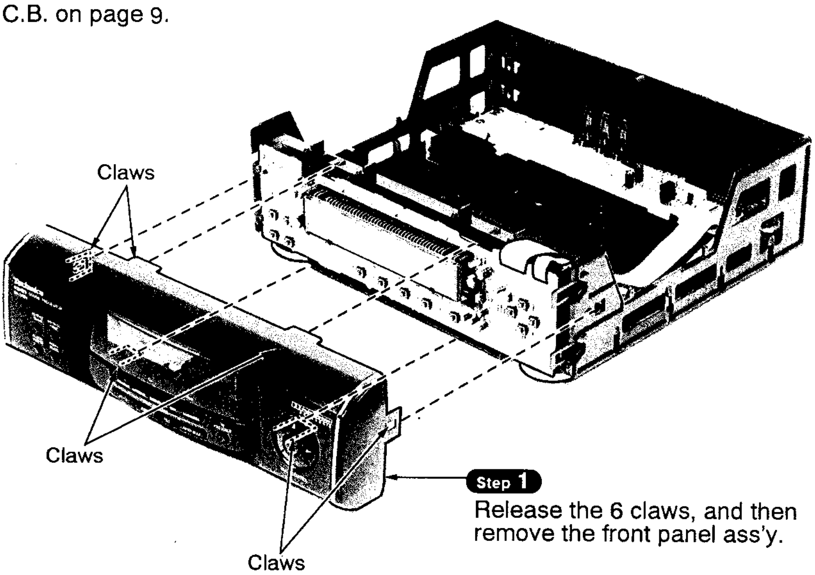
• Check the IN/OUT terminal P.C.B. as shown below.


GND plate
Top cabinet
IN/OUT terminal P.C.B.

Step 7 Connect the lead wire.

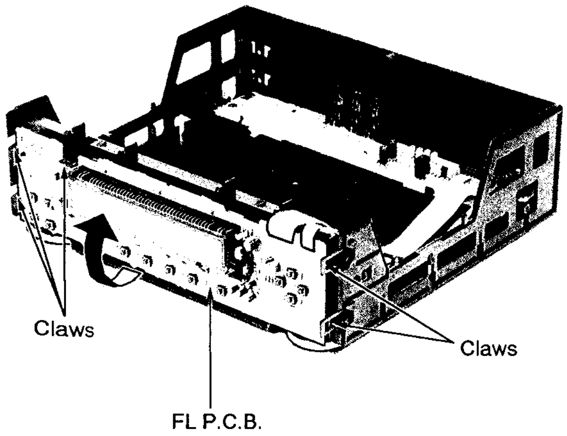
2. Checking for the FL P.C.B.

- Follow the **Step 1** ~ **Step 3** of the item 1 in checking procedure for each P.C.B. on page 9.

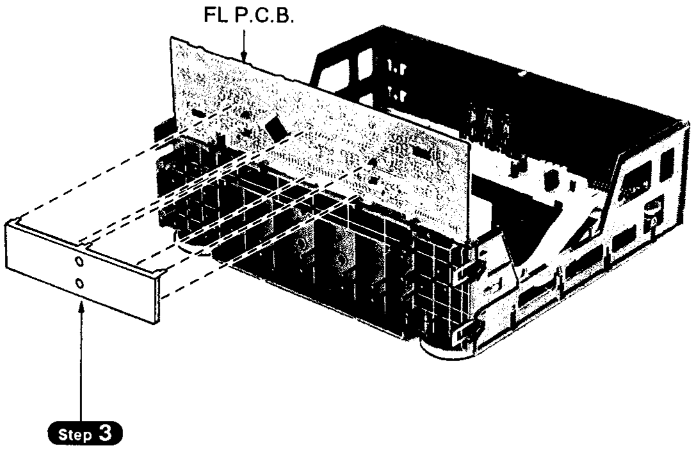

Claws
Claws
Claws

Step 1 Release the 6 claws, and then remove the front panel ass'y.

Step 2 Release the 5 claws, and then remove the FL P.C.B..


Claws
Claws
FL P.C.B.

• Check the FL P.C.B. as shown below.



Step 3 Unsolder the shield plate terminals. (6 points)

■ To Supply Power Source

**This unit SH-EH60 is designed to operate on power supplied from the Tuner/Amplifier SA-EH60.
When operating the unit SH-EH60 alone for testing and servicing, without having power supplied from the Tuner/Amplifier SA-EH60, use the following method.**

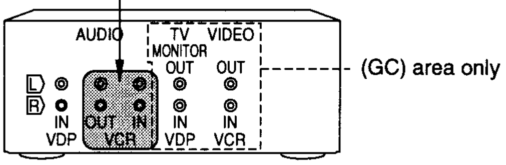
Power Supply to This Unit Alone

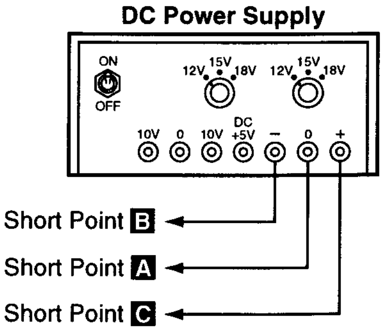
1. Short the section between **J124** and **D101**.
2. Short the section **J306, J307, J305** and **J302** with each other. (Point **A**)
3. Short the section between **J126** and **17 pin** of the connector **JK101**. (Point **B**)
4. Short the section between **J125** and **J101**. (Point **C**)
5. Apply +5 V DC power to the section between **J125** and **(+) foil side** of **C104**.
6. Connect the DC power supply as shown below.
   - +12 V terminal of the DC Power Supply connect to Point **C**.
   - GND terminal of the DC Power Supply connect to Point **A**.
   - –12 V terminal of the DC Power Supply connect to Point **B**.

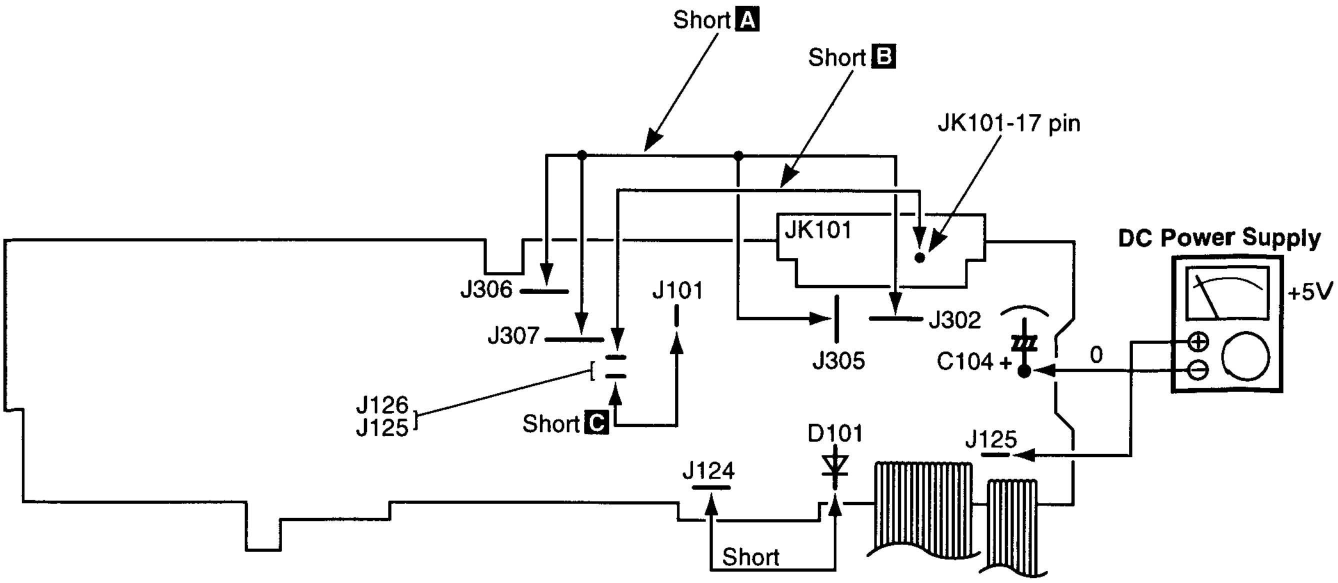
To Check Signal

1. Input the audio signal and confirm in to be outputted from the terminal.

	INPUT	OUTPUT
L-ch	AUDIO IN VCR	AUDIO OUT VCR
R-ch		


AUDIO
TV MONITOR OUT
VIDEO OUT
L
R
IN VDP
OUT IN VCR
IN VDP
IN VCR
(GC) area only


DC Power Supply
ON
OFF
12V 15V 18V
12V 15V 18V
10V 0 10V DC +5V – 0 +
Short Point B
Short Point A
Short Point C


Short A
Short B
JK101-17 pin
JK101
DC Power Supply
+5V
J306
J307
J101
J302
J305
C104 +
0
J126
J125
Short C
D101
J125
J124
Short

■Schematic Diagram

Page
A FL CIRCUIT 13, 14
B IN/OUT TERMINAL CIRCUIT 14

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S301**: EQ SPACE on/off switch (EQ SPACE ON/FLAT)
- **S302**: Acoustic image EQ switch (ACOUSTIC IMAGE EQ)
- **S303**: EQ SPACE preset/manual select switch (PRESET/MANUAL)
- **S304**: Display mode select/demonstration switch (DISP MODE/–DEMO)
- **S305**: DOLBY PRO LOGIC on/off switch (DOLBY PRO LOGIC, OFF/ON)
- **S306**: DOLBY PRO LOGIC mode select switch (MODE)
- **S307**: DOLBY PRO LOGIC test signal switch (TEST)
- **S308**: DOLBY PRO LOGIC center mode select switch (CENTER MODE)
- **S309**: 3D presence select switch (3D PRESENCE)
- **S310 ~ S313** : Multi control switch
  (MULTI CONTROL , S310 : ▼, S311 : ◀, S312 : ▲, S313 : ▶)

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

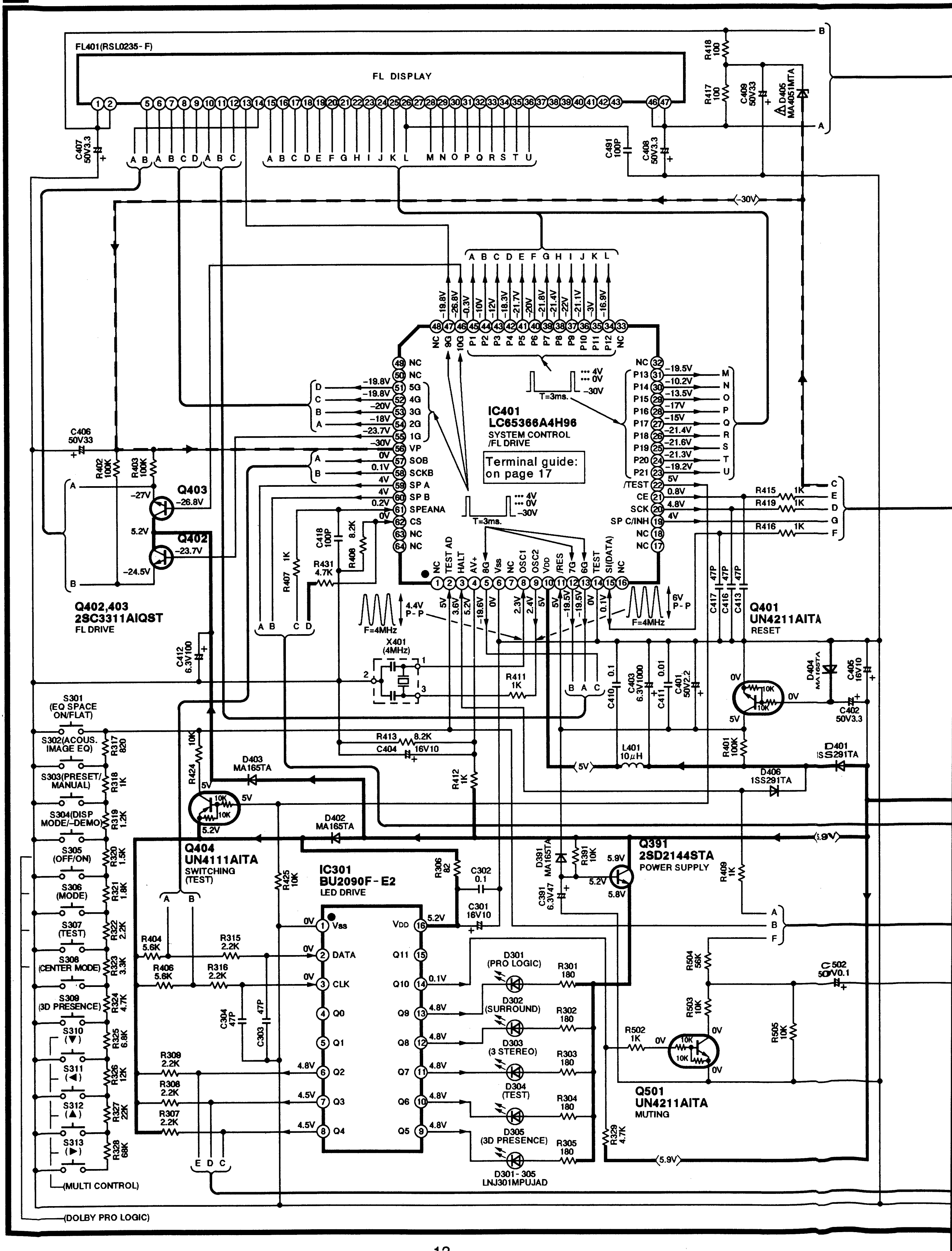
- Voltage values and waveforms are measured as indicated in the schematic diagram when test points between AG and VG, and between DG and CT-G , and between AG and DG are shorted.

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

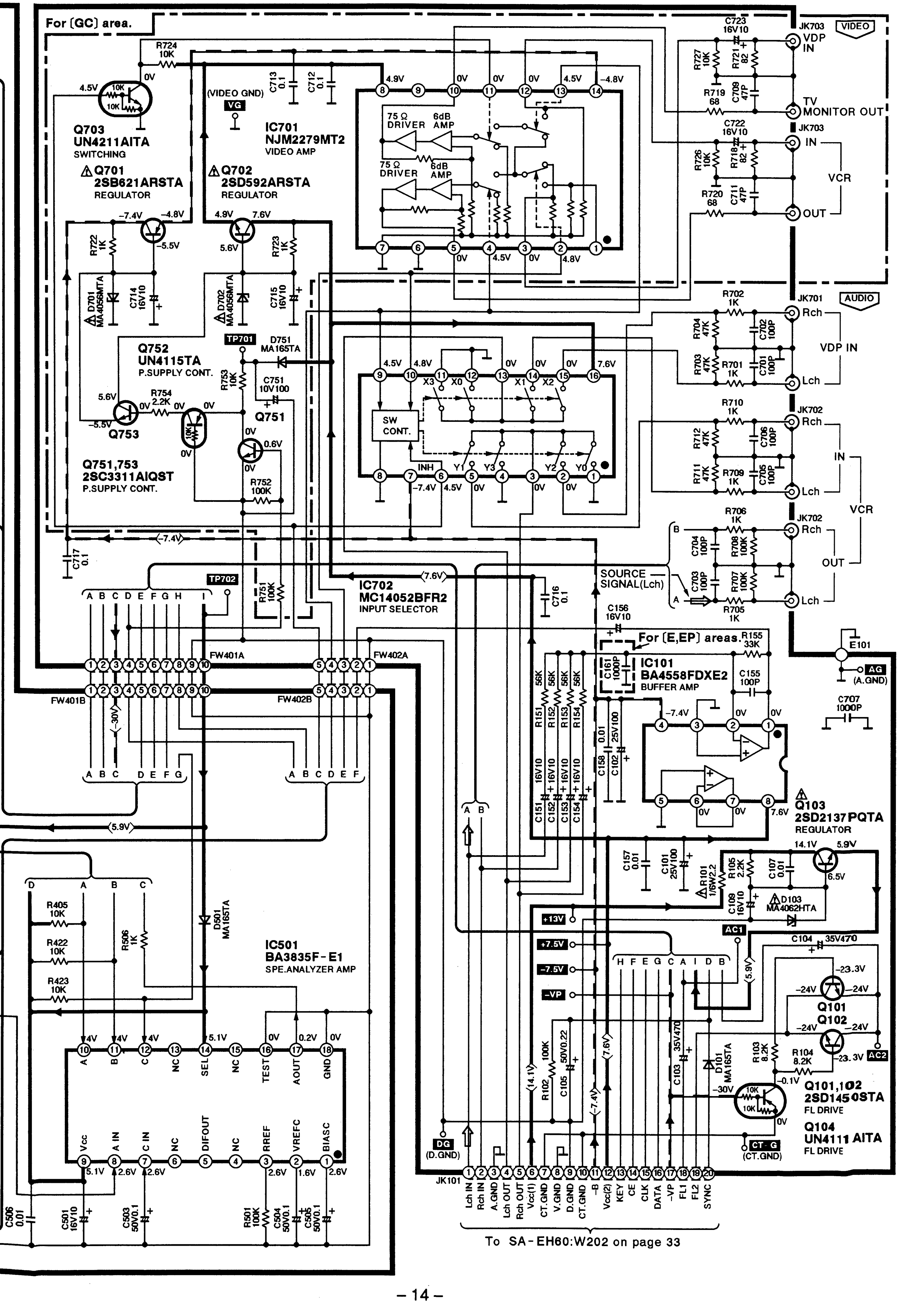
- **Voltage and signal line**
  ━━━▶━━━ : Positive voltage line
  ╍╍╍▶╍╍╍ : Negative voltage line
  ⇨ : Source signal line (L-ch)

A FL CIRCUIT (P.C.Board:on page 15)


FL401(RSL0235-F)
FL DISPLAY
IC401
LC65366A4H96
SYSTEM CONTROL
/FL DRIVE
Terminal guide:
on page 17
T=3ms.
Q402,403
2SC3311AIQST
FL DRIVE
Q403
Q402
Q401
UN4211AITA
RESET
X401
(4MHz)
F=4MHz
4.4V P-P
6V P-P
Q404
UN4111AITA
SWITCHING
(TEST)
IC301
BU2090F-E2
LED DRIVE
Q391
2SD2144STA
POWER SUPPLY
Q501
UN4211AITA
MUTING
D301 (PRO LOGIC)
D302 (SURROUND)
D303 (3 STEREO)
D304 (TEST)
D305 (3D PRESENCE)
D301-305
LNJ301MPUJAD
S301 (EQ SPACE ON/FLAT)
S302(ACOUS. IMAGE EQ)
S303(PRESET/ MANUAL)
S304(DISP MODE/-DEMO)
S305 (OFF/ON)
S306 (MODE)
S307 (TEST)
S308 (CENTER MODE)
S309 (3D PRESENCE)
S310 (▼)
S311 (◀)
S312 (▲)
S313 (▶)
(MULTI CONTROL)
(DOLBY PRO LOGIC)
D401 1SS291TA
D406 1SS291TA
D402 MA165TA
D403 MA165TA
D404 MA165TA
D405 MA4051MTA
D391 MA165TA
L401 10μH
(-30V)
(5V)
(5.9V)

: Positive voltage line
: Negative voltage line
: Source signal line (L-ch)

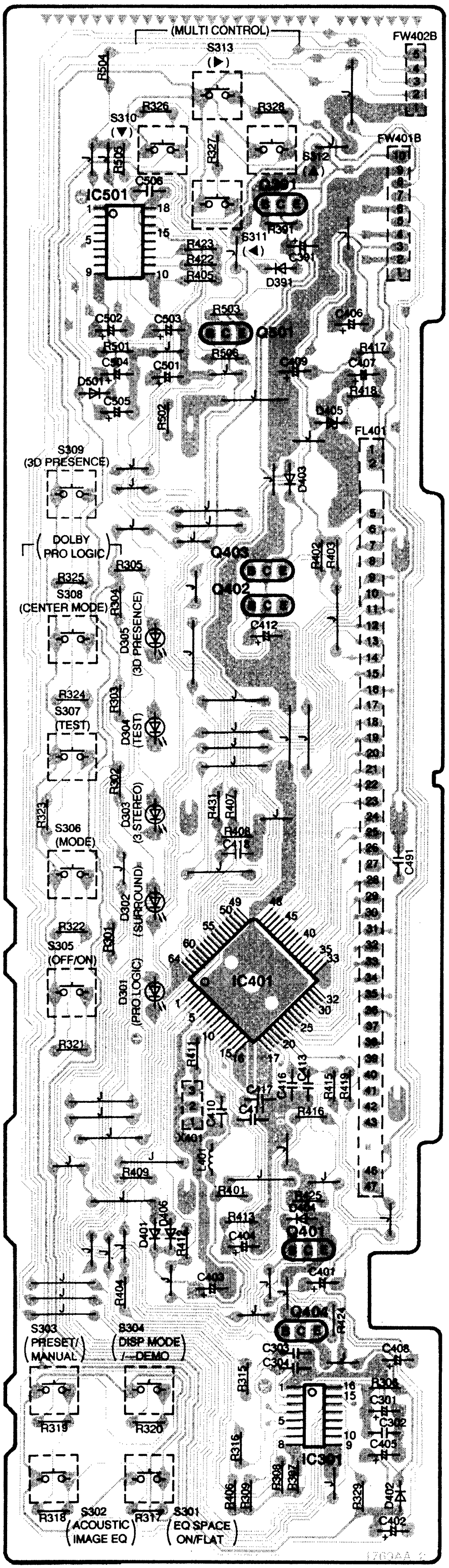
B IN/OUT TERMINAL CIRCUIT (P.C.Board:on page 15)


For (GC) area.
R724 10K
Q703 UN4211AITA SWITCHING
Q701 2SB621ARSTA REGULATOR
Q702 2SD592ARSTA REGULATOR
(VIDEO GND) VG
C713 0.1
C712 0.1
IC701 NJM2279MT2 VIDEO AMP
75Ω DRIVER
6dB AMP
C723 16V10
JK703 VIDEO
VDP IN
R727 10K
R721 82
R719 68
C709 47P
TV MONITOR OUT
C722 16V10
JK703 IN
R726 10K
R718 82
VCR
R720 68
C711 47P
OUT
R722 1K
D701 MA4056MTA
C714 16V10
D702 MA4056MTA
R723 1K
C715 16V10
Q752 UN4115TA P.SUPPLY CONT.
TP701
D751 MA165TA
R753 10K
C751 10V100
Q751
R754 2.2K
Q753
Q751,753 2SC3311AIQST P.SUPPLY CONT.
R752 100K
SW CONT.
INH
X3 X0 X1 X2
Y1 Y3 Y2 Y0
JK701 AUDIO
R702 1K
Rch
R704 47K
C702 100P
VDP IN
R703 47K
R701 1K
C701 100P
Lch
R710 1K
JK702
R712 47K
C706 100P
IN
R711 47K
R709 1K
C705 100P
VCR
R706 1K
JK702
C704 100P
R708 100K
OUT
SOURCE SIGNAL(Lch)
C703 100P
R707 100K
R705 1K
C717 0.1
TP702
R751 100K
IC702 MC14052BFR2 INPUT SELECTOR
C716 0.1
C156 16V10
For (E,EP) areas.
R155 33K
C161 1000P
IC101 BA4558FDXE2 BUFFER AMP
C155 100P
E101
AG (A.GND)
C707 1000P
FW401A
FW402A
FW401B
FW402B
R151 56K
R152 56K
R153 56K
R154 56K
C158 0.01
C102 25V100
C151 16V10
C152 16V10
C153 16V10
C154 16V10
Q103 2SD2137PQTA REGULATOR
C157 0.01
C101 25V100
R101 1/6W2.2
R105 2.2K
C107 0.01
C109 16V10
D103 MA4062HTA
+13V
+7.5V
-7.5V
-VP
AC1
C104 35V470
Q101
Q102
R103 8.2K
R104 8.2K
AC2
Q101,102 2SD1450STA FL DRIVE
Q104 UN4111AITA FL DRIVE
R100 100K
C105 50V0.22
C103 35V470
D101 MA165TA
DG (D.GND)
CT-G (CT.GND)
JK101
Lch IN
Rch IN
A.GND
Lch OUT
Rch OUT
Vcc(1)
CT.GND
V.GND
D.GND
-B
Vcc(2)
KEY
CE
CLK
DATA
-VP
FL1
FL2
SYNC
To SA-EH60:W202 on page 33
R405 10K
R422 10K
R423 10K
R506 1K
D501 MA165TA
IC501 BA3835F-E1 SPE.ANALYZER AMP
A B C NC SEL NC TEST AOUT GND
Vcc A IN C IN NC DIFOUT NC RREF VREFC BIASC
C506 0.01
C501 16V10
C503 50V0.1
R501 100K
C504 50V0.1
C505 50V0.1

■ Printed Circuit Board Diagram

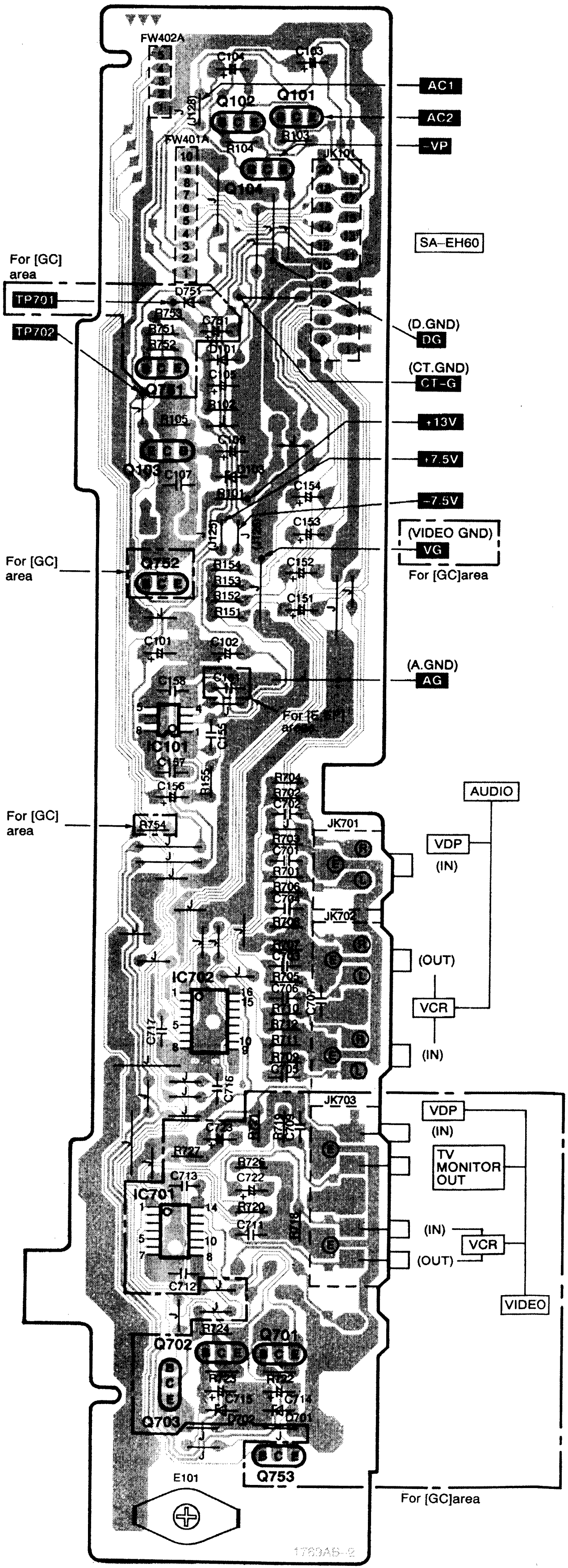
- This circuit board diagram may be modified at any time with the development of new technology.

A FL P.C.B.


(MULTI CONTROL)
FW402B
S313 (▶)
S310 (▼)
S312 (▲)
S311 (◀)
IC501
Q301
Q501
D391
FW401B
FL401
S309 (3D PRESENCE)
DOLBY PRO LOGIC
S308 (CENTER MODE)
S307 (TEST)
S306 (MODE)
S305 (OFF/ON)
D305 (3D PRESENCE)
D304 (TEST)
D303 (3 STEREO)
D302 (SURROUND)
D301 (PRO LOGIC)
Q403
Q402
IC401
Q401
Q404
IC301
X401
S303 (PRESET/ MANUAL)
S304 (DISP MODE /–DEMO)
S302 (ACOUSTIC IMAGE EQ)
S301 (EQ SPACE ON/FLAT)

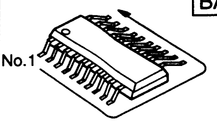
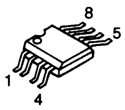
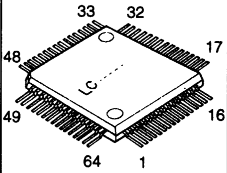
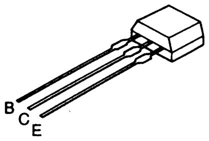
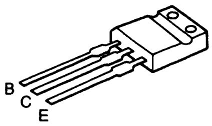
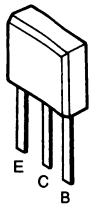
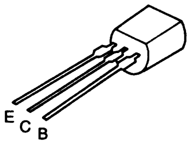
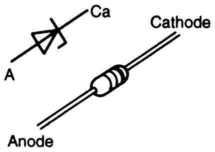
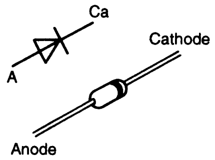
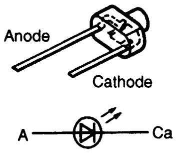
(REP2474B–M • • •[GC]
REP2474C–M • • •[E,EP])

B IN/OUT TERMINAL P.C.B.

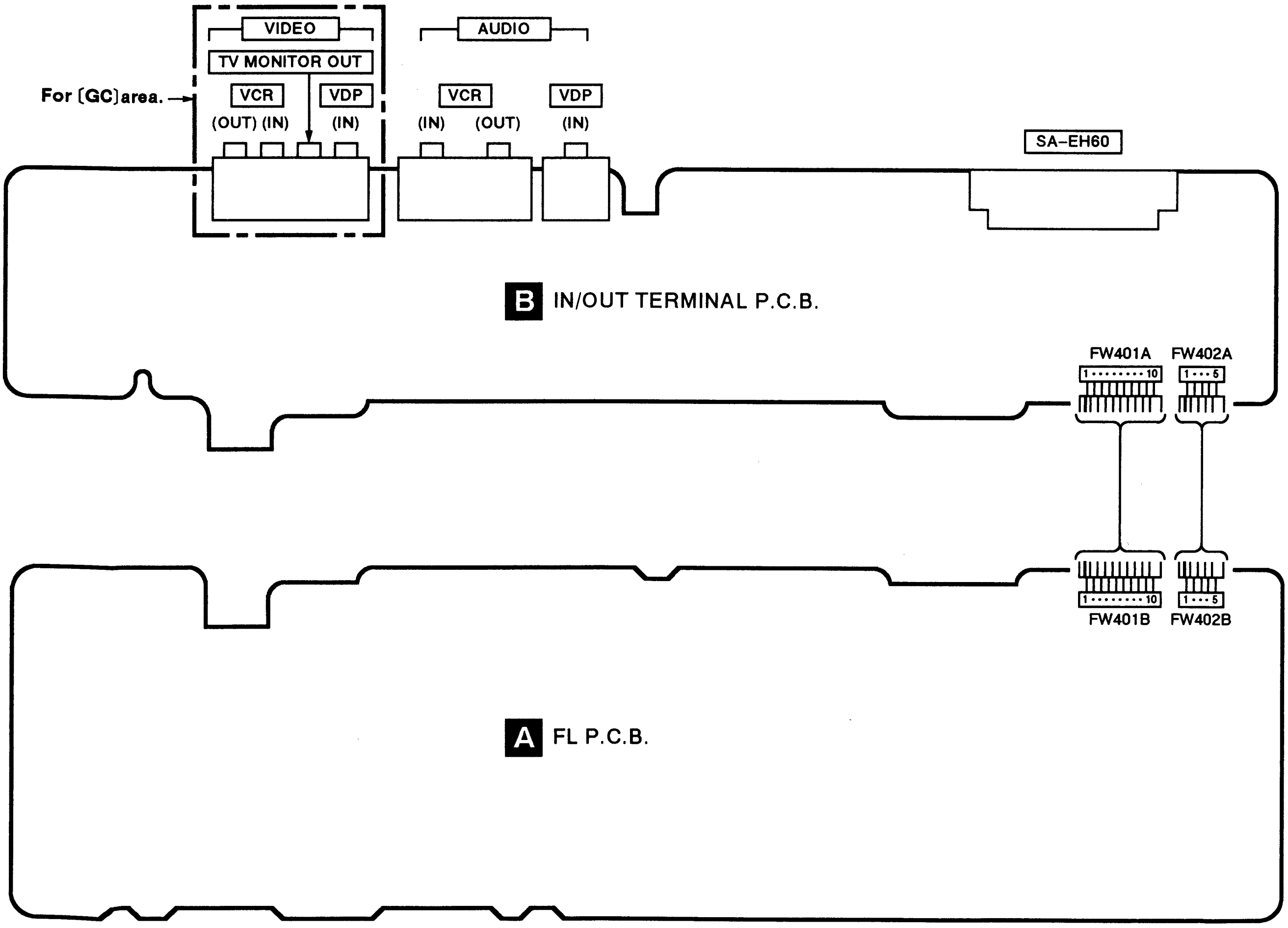

FW402A
FW401A
Q101
Q102
Q104
Q103
JK101
AC1
AC2
–VP
SA–EH60
For [GC] area
TP701
TP702
(D.GND) DG
(CT.GND) CT-G
+13V
+7.5V
–7.5V
(VIDEO GND) VG
For [GC]area
Q751
Q752
(A.GND) AG
IC101
For [E,EP] area
AUDIO
JK701
VDP (IN)
JK702
(OUT)
VCR
(IN)
IC702
JK703
VDP (IN)
TV MONITOR OUT
(IN)
VCR
(OUT)
VIDEO
IC701
Q702
Q701
Q703
Q753
E101

(REP2474B–M • • •[GC]
REP2474C–M • • •[E,EP])

■ Type Illustration of IC's, Transistors and Diodes

NJM2279MT2 14PIN BU2090F-E2 16PIN MC14052BFR2 16PIN BA3835F-E1 18PIN 	BA4558FDXE2 	LC65366A4H96  33 32 17 48 49 16 64 1	2SD2144STA 	2SD2137PQTA 
 2SC3311AIQST 2SD1450STA UN4111AITA UN4115TA UN4211AITA	2SB621ARSTA 2SD592ARSTA 	MA4051MTA MA4056MTA MA4062HTA  Ca Cathode A Anode	1SS291TA MA165TA  Ca Cathode A Anode	LNJ301MPUJAD  Anode Cathode A Ca

■ Wiring Connection Diagram


VIDEO
TV MONITOR OUT
For [GC] area.
VCR
(OUT) (IN)
VDP
(IN)
AUDIO
VCR
(IN) (OUT)
VDP
(IN)
SA-EH60
B IN/OUT TERMINAL P.C.B.
FW401A
FW402A
1 ········· 10
1 ··· 5
1 ········· 10
1 ··· 5
FW401B
FW402B
A FL P.C.B.

■ Terminal Function of IC's

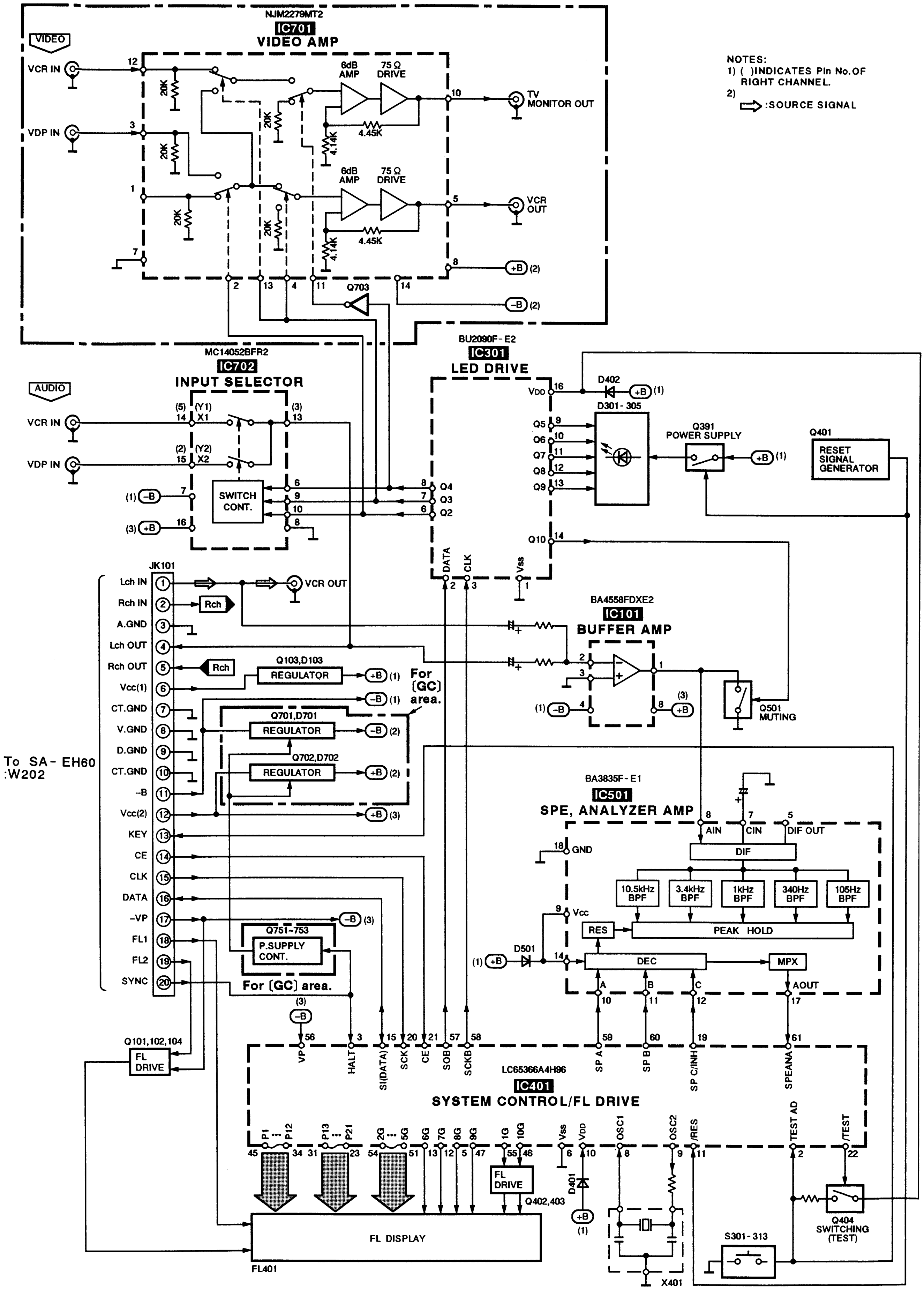
● IC401 (LC65366A4H96) : System Control / FL Drive

Pin No.	Terminal Name	I/O	Function
1	NC	—	No used, open
2	TEST AD	I	TEST mode key signal input
3	HALT	I	Power failure detect signal input
4	AV+	—	Power supply for analog circuit (+5 V)
5	8G	O	Grid signal output
6	VSS	—	GND terminal
7	NC	—	No used, open
8	OSC1	I	Oscillator connected terminal (4 MHz)
9	OSC2	O	
10	VDD	—	Power supply
11	/RES	I	Reset signal input
12, 13	7G, 6G	O	Grid signal output
14	TEST	—	No used, conneted to VSS
15	SI	I/O	Communication data signal input from SA-EH60
16~18	NC	—	No used, open
19	SP C/INH	O	Select terminal for Spectrum analyzer IC output
20	SCK	O	Serial communication signal from SA-EH60 (Clock signal input)

Pin No.	Terminal Name	I/O	Function
21	CE	O	Serial communication signal from SA-EH60 (Chip enable signal input)
22	/TEST	O	Test signal terminal
23~31	P21~P13	O	Segment signal output
32, 33	NC	—	No used, open
34~45	P12~P1	O	Segment signal output
46, 47	10G, 9G	O	Grid signal output
48~50	NC	—	No used, open
51~55	5G~1G	O	Grid signal output
56	VP	—	Negative power supply
57	SOB	O	Serial data signal output
58	SCKB	O	Serial clock signal output
59	SP A	O	Select terminal for Spectrum analyzer IC output
60	SP B	O	
61	SPEANA	I	Analog signal input for spectrum analyzer IC
62	CS	I	Chip select signal input terminal
63, 64	NC	—	No used, open

■ Block Diagram

For [GC] area.


NJM2279MT2
IC701
VIDEO AMP
VIDEO
VCR IN
VDP IN
20K
6dB AMP
75 Ω DRIVE
4.45K
4.14K
TV MONITOR OUT
VCR OUT
Q703
+B (2)
−B (2)
MC14052BFR2
IC702
INPUT SELECTOR
AUDIO
(5) (Y1) 14 X1
(2) (Y2) 15 X2
SWITCH CONT.
(1) −B
(3) +B
BU2090F-E2
IC301
LED DRIVE
VDD
Q5
Q6
Q7
Q8
Q9
Q10
Q4
Q3
Q2
DATA
CLK
Vss
D402
+B (1)
D301-305
Q391 POWER SUPPLY
Q401
RESET SIGNAL GENERATOR
JK101
Lch IN
Rch IN
A.GND
Lch OUT
Rch OUT
Vcc(1)
CT.GND
V.GND
D.GND
CT.GND
−B
Vcc(2)
KEY
CE
CLK
DATA
−VP
FL1
FL2
SYNC
To SA-EH60 :W202
Rch
VCR OUT
Q103,D103 REGULATOR
Q701,D701 REGULATOR
Q702,D702 REGULATOR
For [GC] area.
Q751~753 P.SUPPLY CONT.
For [GC] area.
BA4558FDXE2
IC101
BUFFER AMP
Q501 MUTING
BA3835F-E1
IC501
SPE, ANALYZER AMP
AIN
CIN
DIF OUT
GND
DIF
10.5kHz BPF
3.4kHz BPF
1kHz BPF
340Hz BPF
105Hz BPF
Vcc
RES
PEAK HOLD
D501
DEC
MPX
AOUT
A
B
C
Q101,102,104 FL DRIVE
LC65366A4H96
IC401
SYSTEM CONTROL/FL DRIVE
VP
HALT
SI(DATA)
SCK
CE
SOB
SCKB
SP A
SP B
SP C/INH
SPEANA
P1 ··· P12
P13 ··· P21
2G ··· 5G
6G
7G
8G
9G
1G
10G
Vss
VDD
OSC1
OSC2
/RES
TEST AD
/TEST
FL DRIVE
Q402,403
D401
FL DISPLAY
FL401
X401
S301-313
Q404 SWITCHING (TEST)

NOTES:
1) ( )INDICATES Pin No.OF RIGHT CHANNEL.
2) ⇨ :SOURCE SIGNAL

■ Replacement Parts List (Electrical)

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*[M] Indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101	BA4558FDXE2	IC	[M]
IC301	BU2090F-E2	IC	[M]
IC401	LC65366A4H96	IC	[M]
IC501	BA3835F-E1	IC	[M]
IC701	NJM2279MT2	IC	[M] (GC)
IC702	MC14052BFR2	IC	[M]
		TRANSISTOR(S)	
Q101, 102	2SD1450RTA	TRANSISTOR	[M]
Q103⚠	2SD2137PQTA	TRANSISTOR	[M]
Q104	UN4111	TRANSISTOR	[M]
Q391	2SD2144S	TRANSISTOR	[M]
Q401	UN4211	TRANSISTOR	[M]
Q402, 403	2SC3311AIRTA	TRANSISTOR	[M]
Q404	UN4111	TRANSISTOR	[M]
Q501	UN4211	TRANSISTOR	[M]
Q701⚠	2SB621ARSTA	TRANSISTOR	[M] (GC)
Q702⚠	2SD592ARSTA	TRANSISTOR	[M] (GC)
Q703	UN4211	TRANSISTOR	[M] (GC)
Q751	2SC3311AIQST	TRANSISTOR	[M] (GC)
Q752	UN4115TA	TRANSISTOR	[M] (GC)
Q753	2SC3311AIQST	TRANSISTOR	[M] (GC)
		DIODE(S)	
D101	MA165	DIODE	[M]
D103⚠	MA4062-H	DIODE	[M]
D301-305	LNJ301MPUJAD	DIODE	[M]
D391	MA165	DIODE	[M]
D401	1SS291TA	DIODE	[M]
D402-404	MA165	DIODE	[M]
D405⚠	MA4051MTA	DIODE	[M]
D406	1SS291TA	DIODE	[M]
D501	MA165	DIODE	[M]
D701, 702⚠	MA4056MTA	DIODE	[M] (GC)
D751	MA165TA	DIODE	[M] (GC)
		COIL(S)	
L401	RLQA100JT-Y	COIL	[M]
		OSCILLATOR(S)	
X401	EFOEC4004T4	OSCILLATOR	[M]
		DISPLAY TUBE	
FL401	RSL0235-F	DISPLAY TUBE	[M]
		SWITCH(ES)	
S301-313	EVQ21405R	SW	[M]
		EARTH TERMINAL(S)	
E101	SNE1004-2	EARTH TERMINAL	[M]
		JACK(S)	
JK101	RJT065K20	SYSTEM	[M]
JK701	SJF3068-7N	VDP IN	[M]
JK702	SJF3069N	VCR IN/OUT	[M]
JK703	SJF3069-3N	VDP/VCR IN/OUT	[M] (GC)

Resistors and Capacitors

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R101⚠	ERQ16NKW2R2E	1/6W 2.2 [M]
R102	ERDS2TJ104	1/4W 100K [M]
R103, 104	ERDS2TJ822	1/4W 8.2K [M]
R105	ERDS2TJ222	1/4W 2.2K [M]
R151-154	ERDS2TJ563	1/4W 56K [M]
R155	ERDS2TJ333	1/4W 33K [M]
R301-305	ERDS2TJ181T	1/4W 180 [M]
R306	ERDS2TJ820	1/4W 82 [M]
R307-309	ERDS2TJ222	1/4W 2.2K [M]
R315, 316	ERDS2TJ222	1/4W 2.2K [M]
R317	ERDS2TJ821	1/4W 820 [M]
R318	ERDS2TJ102	1/4W 1K [M]
R319	ERDS2TJ122	1/4W 1.2K [M]
R320	ERDS2TJ152	1/4W 1.5K [M]
R321	ERDS2TJ182	1/4W 1.8K [M]
R322	ERDS2TJ222	1/4W 2.2K [M]
R323	ERDS2TJ332	1/4W 3.3K [M]
R324	ERDS2TJ472	1/4W 4.7K [M]
R325	ERDS2TJ682T	1/4W 6.8K [M]
R326	ERDS2TJ123	1/4W 12K [M]
R327	ERDS2TJ223	1/4W 22K [M]
R328	ERDS2TJ683	1/4W 68K [M]
R329	ERDS2TJ472	1/4W 4.7K [M]
R391	ERDS2TJ103	1/4W 10K [M]
R401-403	ERDS2TJ104	1/4W 100K [M]
R404	ERDS2TJ562	1/4W 5.6K [M]
R405	ERDS2TJ103	1/4W 10K [M]
R406	ERDS2TJ562	1/4W 5.6K [M]
R407	ERDS2TJ102	1/4W 1K [M]
R408	ERDS2TJ822	1/4W 8.2K [M]
R409	ERDS2TJ102	1/4W 1K [M]
R411, 412	ERDS2TJ102	1/4W 1K [M]
R413	ERDS2TJ822	1/4W 8.2K [M]
R415, 416	ERDS2TJ102	1/4W 1K [M]
R417, 418	ERDS2TJ101	1/4W 100 [M]
R419	ERDS2TJ102	1/4W 1K [M]
R422-425	ERDS2TJ103	1/4W 10K [M]
R431	ERDS2TJ472	1/4W 4.7K [M]
R501	ERDS2TJ104	1/4W 100K [M]
R502	ERDS2TJ102	1/4W 1K [M]
R503	ERDS2TJ103	1/4W 10K [M]
R504	ERDS2TJ563	1/4W 56K [M]
R505	ERDS2TJ103	1/4W 10K [M]
R506	ERDS2TJ102	1/4W 1K [M]
R701, 702	ERDS2TJ102	1/4W 1K [M]
R703, 704	ERDS2TJ473	1/4W 47K [M]
R705, 706	ERDS2TJ102	1/4W 1K [M]
R707, 708	ERDS2TJ104	1/4W 100K [M]
R709, 710	ERDS2TJ102	1/4W 1K [M]
R711, 712	ERDS2TJ473	1/4W 47K [M]
R718	ERDS2TJ820T	1/4W 82 [M] (GC)
R719, 720	ERDS2TJ680T	1/4W 68 [M] (GC)
R721	ERDS2TJ820T	1/4W 82 [M] (GC)
R722, 723	ERDS2TJ102T	1/4W 1K [M] (GC)
R724	ERDS2TJ103T	1/4W 10K [M] (GC)
R726, 727	ERDS2TJ103T	1/4W 10K [M] (GC)
R751, 752	ERDS2TJ104T	1/4W 100K [M] (GC)
R753	ERDS2TJ103T	1/4W 10K [M] (GC)
R754	ERDS2TJ222T	1/4W 2.2K [M] (GC)
		CAPACITORS
C101, 102	ECA1EM101B	25V 100U [M]
C103, 104	RCE1VM471BV	35V 470U [M]
C105	ECEA1HKAR22B	50V 0.22U [M]
C107	ECBT1E103ZF	25V 0.01U [M]
C109	RCE1CKA100BG	16V 10U [M]
C151-154	RCE1CKA100BG	16V 10U [M]
C155	ECBT1H101KB5	50V 100P [M]
C156	RCE1CKA100BG	16V 10U [M]
C157, 158	ECBT1E103ZF	25V 0.01U [M]
C161	ECBT1H102KB5	50V 1000P [M] (E, EP)
C301	RCE1CKA100BG	16V 10U [M]
C302	ECBT1H104ZF5	50V 0.1U [M]
C303, 304	ECBT1H470J5	50V 47P [M]
C391	RCE0JKA470BG	6.3V 47U [M]
C401	ECEA1HKA2R2B	50V 2.2U [M]
C402	RCE1HKA3R3BG	50V 3.3U [M]
C403	RCE0JU102BV	6.3V 1000U [M]
C404, 405	RCE1CKA100BG	16V 10U [M]
C406	ECEA1HKA330B	50V 33U [M]
C407, 408	RCE1HKA3R3BG	50V 3.3U [M]
C409	ECEA1HKA330B	50V 33U [M]
C410	ECBT1H104ZF5	50V 0.1U [M]
C411	ECBT1E103ZF	25V 0.01U [M]
C412	ECEA0JKS101B	6.3V 100U [M]
C413	ECBT1H470J5	50V 47P [M]
C416, 417	ECBT1H470J5	50V 47P [M]
C418	ECBT1H101KB5	50V 100P [M]
C491	ECBT1H101KB5	50V 100P [M]
C501	RCE1CKA100BG	16V 10U [M]
C502-505	ECEA1HKA0R1B	50V 0.1U [M]
C506	ECBT1E103ZF	25V 0.01U [M]
C701-706	ECBT1H101KB5	50V 100P [M]
C707	ECBT1H102KB5	50V 1000P [M]
C709, 711	ECBT1H470J5	50V 47P [M] (GC)
C712, 713	ECBT1H104ZF5	50V 0.1U [M] (GC)
C714, 715	RCE1CKA100BG	16V 10U [M] (GC)
C716, 717	ECBT1H104ZF5	50V 0.1U [M]
C722, 723	RCE1CKA100BG	16V 10U [M] (GC)
C751	RCE1AKA101BG	10V 100U [M] (GC)

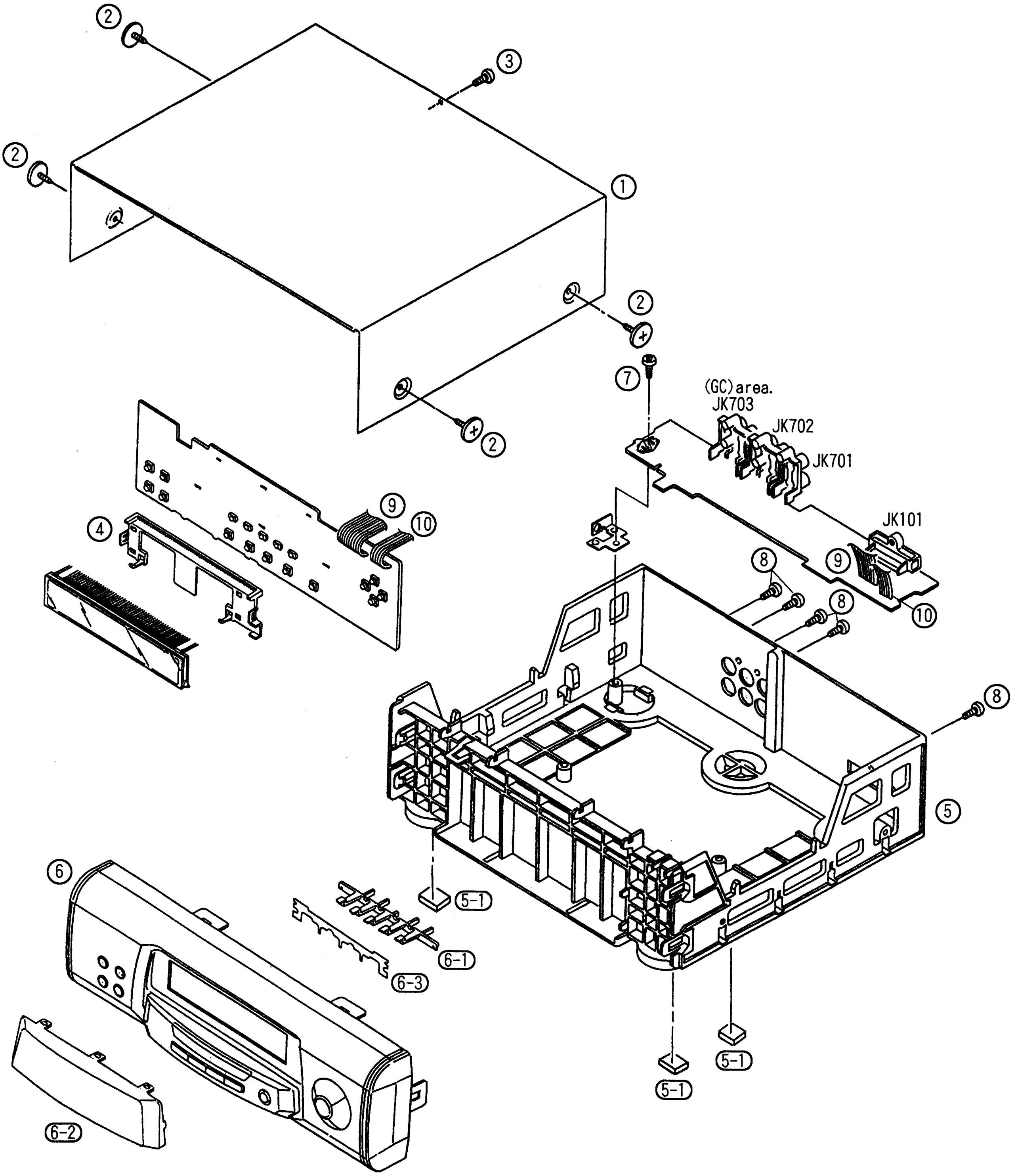
Replacement Parts List (Cabinet)

Notes: *The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*[M] Indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RKM0302-K	CABINET	[M]
2	RHD30007-K1	SCREW	[M]
3	XTB3+8JFZ	SCREW	[M]
4	RMN0424	FL HOLDER	[M]
5	RYK0700B-K	BOTTOM CABINET ASS'Y	[M] (E, EP)
5	RYK0700D-K	BOTTOM CABINET ASS'Y	[M] (GC)
5-1	SHG1654	RUBBER	[M]
6	RYP0733D-K	FRONT PANEL ASS'Y	[M]
6-1	RGL0358-Q	LENS	[M]
6-2	RKW0504-V	FL PANEL	[M]
6-3	RMZ0423	SHEET	[M]
7	XTBS3+8JFZ1	SCREW	[M]
8	XTB3+8JFZ	SCREW	[M]
9	RWJ5710240KK	FLAT CABLE(FW401/10P)	[M]
10	RWJ5705240KK	FLAT CABLE(FW402/5P)	[M]

Ref. No.	Part No.	Part Name & Description	Remarks

■ Cabinet Parts Location


②
③
②
①
②
⑦
②
(GC)area.
JK703
JK702
JK701
⑨
④
⑩
JK101
⑧
⑨
⑧
⑩
⑧
⑤
⑥
5-1
6-1
6-3
5-1
5-1
6-2

ORDER NO. PAES 970210C6

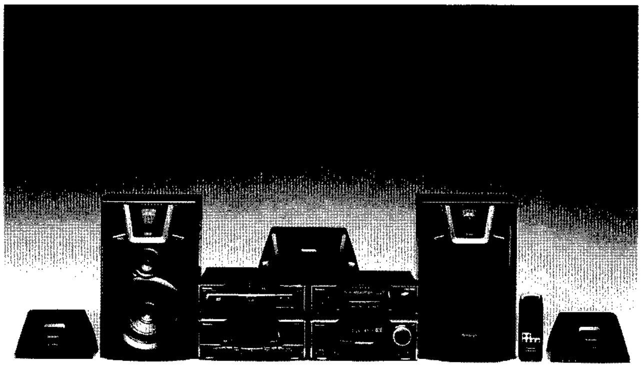
Service Manual

Speaker System
SB-EH60

Colour

(K) . . . . Black Type

Hi-Fi Speaker System



■ SPECIFICATIONS

Type	3 way, 3 speaker system
Speaker	Woofer: 14 cm cone type Mid range: 6cm cone type Tweeter: 6 cm cone type
Impedance	6 Ω
Input power	160 W (MUSIC) 80,(DIN)
Output sound pressure level	85dB/W (1.0 m)
Cross over frequency	3KHz,8KHz
Frequency range	42Hz - 22kHz (-16 dB) 46Hz - 20kHz (-10 dB)
Dimensions (W x H x D)	254 x 412x 267 mm
Weight	5,1 kg

Notes:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

■ ESPECIFICACIONES

Tipo	Sistema con 3 vias, 3 altavoces
Altavoces	Graves: 14 cm tipo cónico Medios: 6 cm tipo cónico Agudos: 6 cm tipo cónico
Impedancia	6 Ω
Capacidad de potencia	160 W (Músicales) 80,(DIN)
Nivel de presión acústica de salida	85dB/W (1.0 m)
Frecuencia de cruce	3KHz,8KHz
Respuesta de frecuencias	42Hz - 22kHz (-16 dB) 46Hz - 20kHz (-10 dB)
Dimensiones (W x H x D)	254 x 412 x 267 m
Peso	5,1 kg

Nota:
Estas especificaciones están sujetas a cualquier cambio.
Peso y dimensiones son aproximados.

■ SPECIFICATIONS

Type	3-voies, 3-haut-parleurs
Haut-parleurs	Graves: 14 cm type a cone Moyennes: 6 cm type a cone Aguis: 6 cm type a cone
Impédance	6 Ω
Entrée maximale	160 W (Musique) 80,(DIN)
Niveau de pression sonore de sortie	85dB/W (1.0 m)
Fréquence de conmutation	3KHz,8KHz
Gamme de fréquences	42Hz - 22kHz (-16 dB) 46Hz - 20kHz (-10 dB)
Dimensions (W x H x D)	254 x 412 x 267 mm
Poids	5,1 kg

Notes:
Suject à changement sans preavis.
Poids et dimensions sont aproximatifs.

⚠ WARNING

This service information is designed for experiense repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics®

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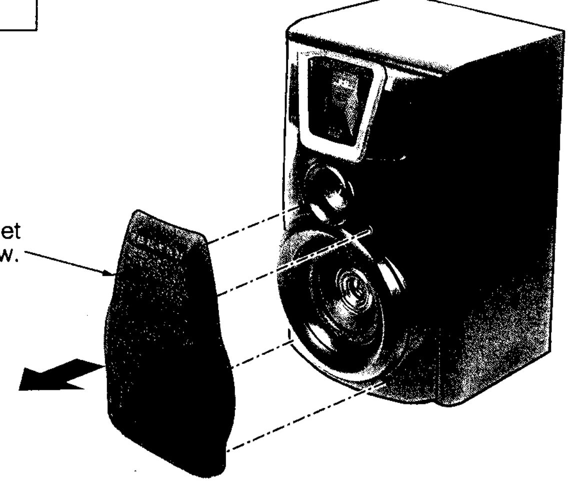
DISASSEMBLY INSTRUCTIONS

Ref.No. 1	Removal of the speaker net
Procedure 1	

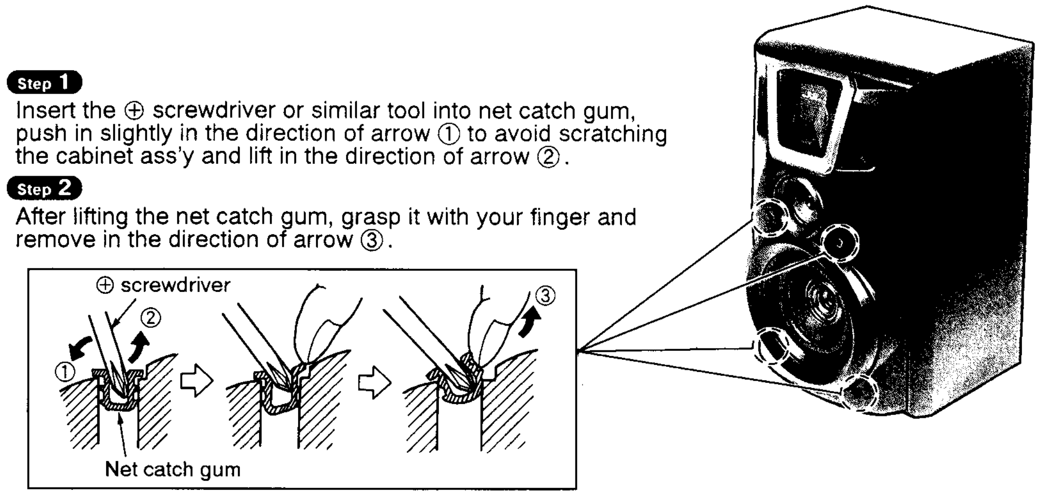


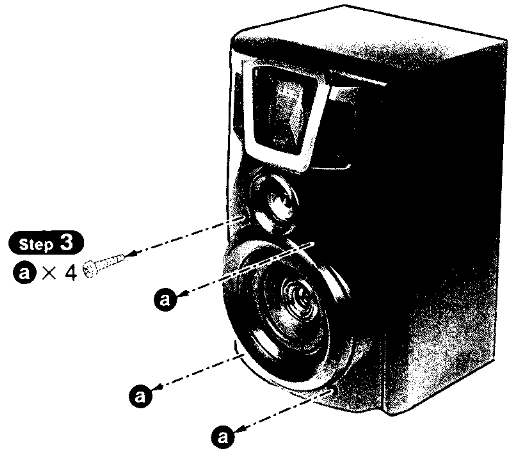
- Remove the speaker net in the direction of arrow.

Ref.No. 2	Removal of the front panel ass'y
Procedure 1 ➡ 2	

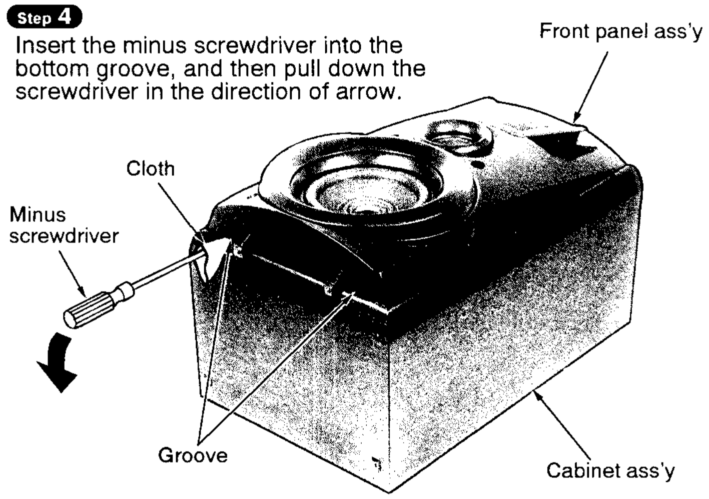
Step 1
Insert the ⊕ screwdriver or similar tool into net catch gum, push in slightly in the direction of arrow ① to avoid scratching the cabinet ass'y and lift in the direction of arrow ②.

Step 2
After lifting the net catch gum, grasp it with your finger and remove in the direction of arrow ③.

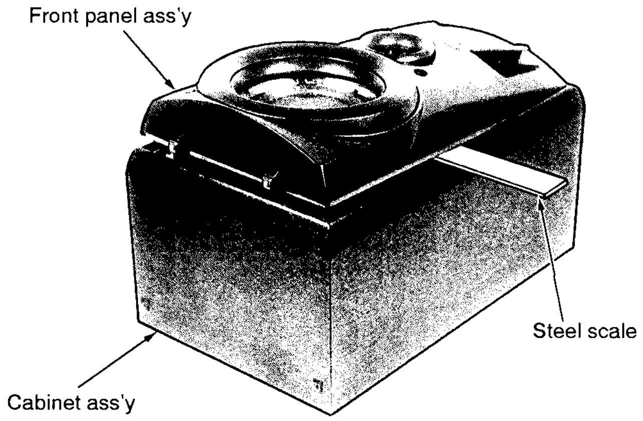

⊕ screwdriver
①
②
③
Net catch gum


Step 3
ⓐ × 4

Step 4
Insert the minus screwdriver into the bottom groove, and then pull down the screwdriver in the direction of arrow.

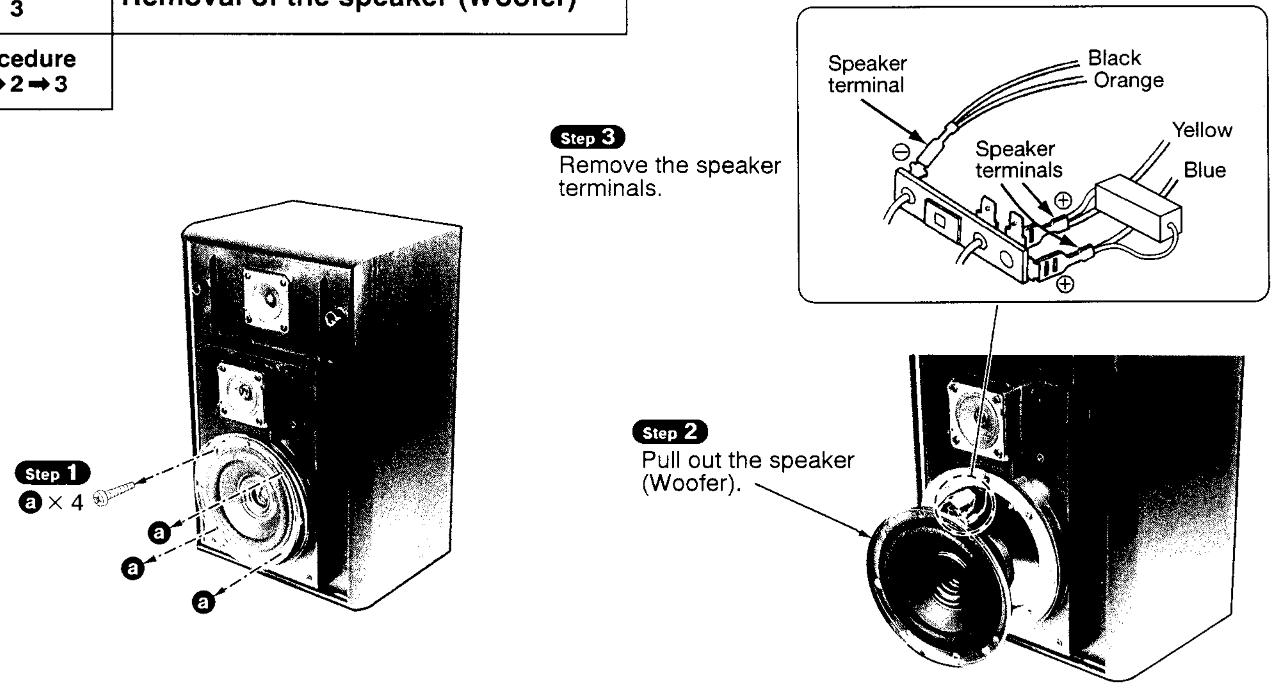

Front panel ass'y
Cloth
Minus screwdriver
Groove
Cabinet ass'y

NOTE
To avoid the damage to the cabinet ass'y or front panel ass'y, cover to the minus screwdriver with cloth.


Front panel ass'y
Steel scale
Cabinet ass'y

Step 5
Insert the steel scale to the clearance between the front panel ass'y and cabinet ass'y and spread the clearance to the upper little by little.
Remove the front panel ass'y after the clearance is widen fully.

Ref.No. 3	Removal of the speaker (Woofer)
Procedure 1 ➡ 2 ➡ 3	

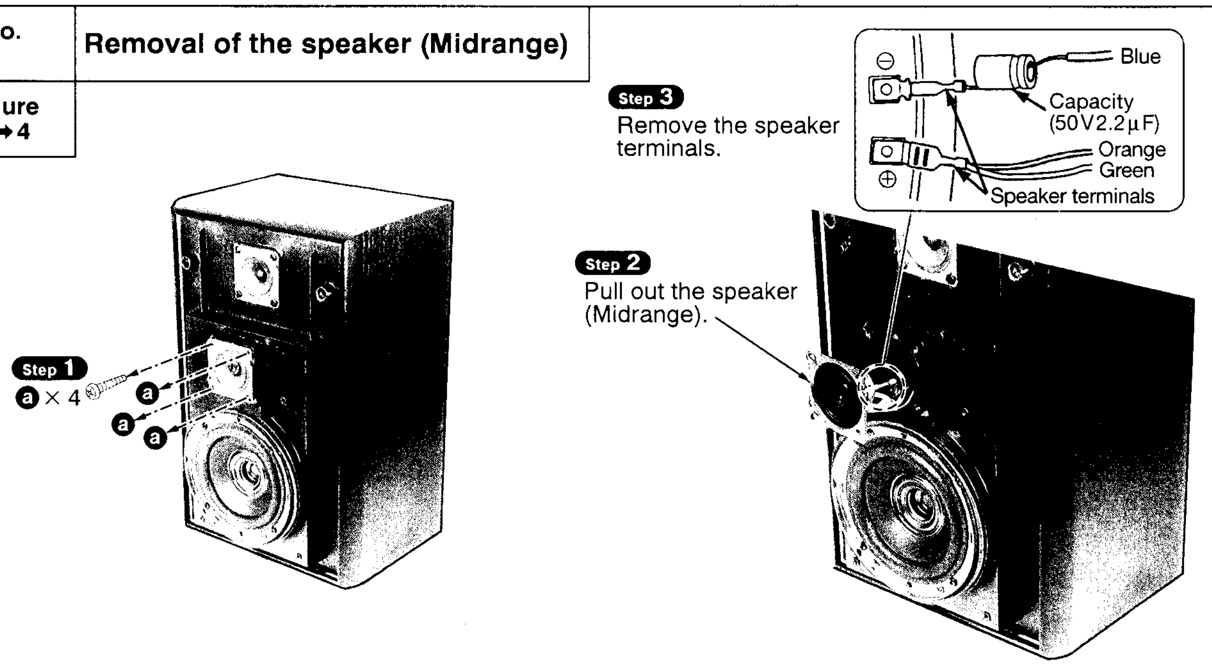

Speaker terminal
Black
Orange
Yellow
Blue
Speaker terminals
⊖
⊕
⊕
ⓐ
ⓐ
ⓐ

Step 3
Remove the speaker terminals.

Step 2
Pull out the speaker (Woofer).

Step 1
ⓐ × 4

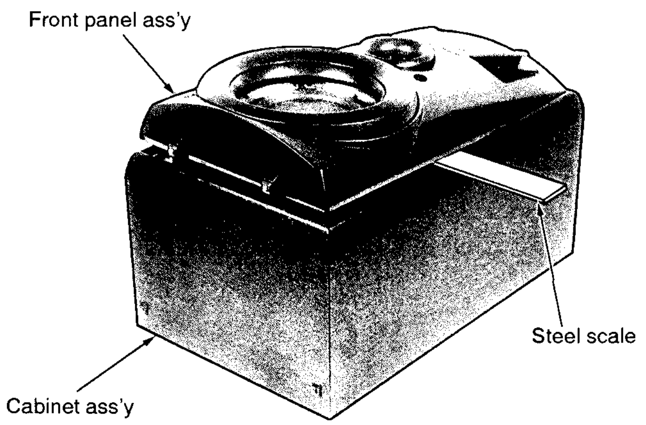
Ref.No. 4	Removal of the speaker (Midrange)
Procedure 1 ➡ 2 ➡ 4	


⊖
⊕
Blue
Capacity (50V2.2μF)
Orange
Green
Speaker terminals
ⓐ
ⓐ
ⓐ

Step 3
Remove the speaker terminals.

Step 2
Pull out the speaker (Midrange).

Step 1
ⓐ × 4

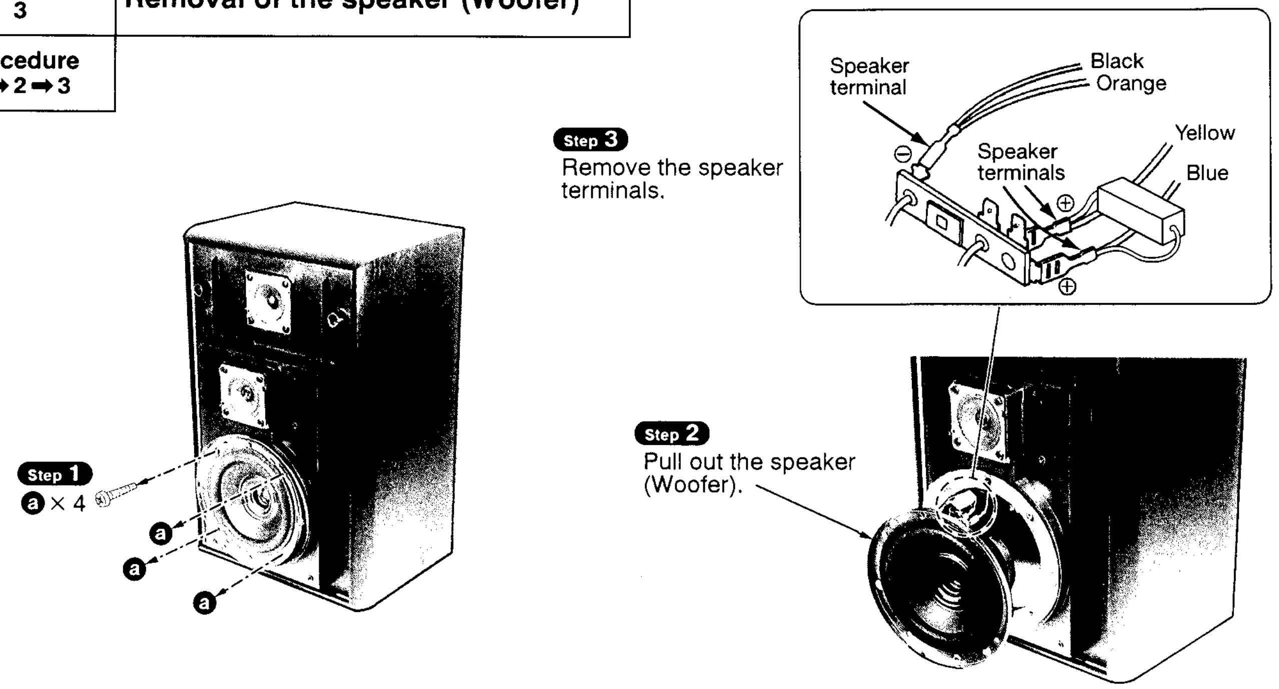

Front panel ass'y
Steel scale
Cabinet ass'y

Step 5
Insert the steel scale to the clearance between the front panel ass'y and cabinet ass'y and spread the clearance to the upper little by little.
Remove the front panel ass'y after the clearance is widen fully.

Ref.No. 3

Removal of the speaker (Woofer)

Procedure
1 → 2 → 3


ⓐ × 4
ⓐ
ⓐ
ⓐ
Speaker terminal
Black
Orange
Yellow
Blue
Speaker terminals
⊖
⊕
⊕

Step 1

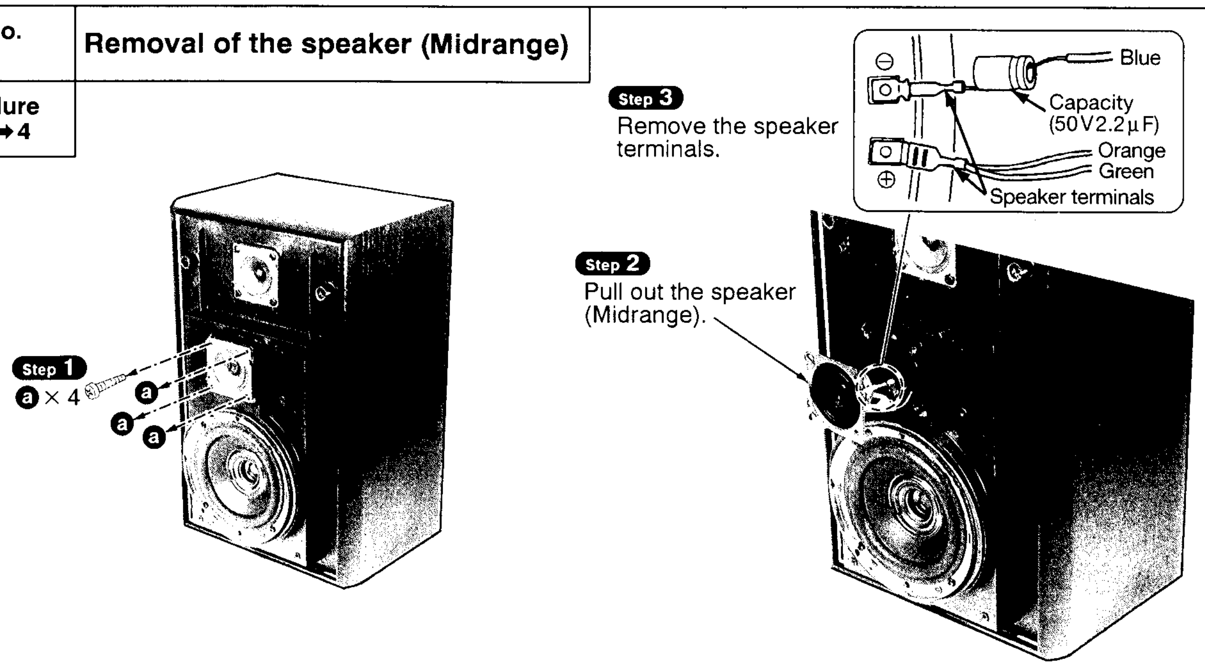
Step 3
Remove the speaker terminals.

Step 2
Pull out the speaker (Woofer).

Ref.No. 4

Removal of the speaker (Midrange)

Procedure
1 → 2 → 4


ⓐ × 4
ⓐ
ⓐ
ⓐ
⊖
⊕
Blue
Capacity (50V2.2μF)
Orange
Green
Speaker terminals

Step 1

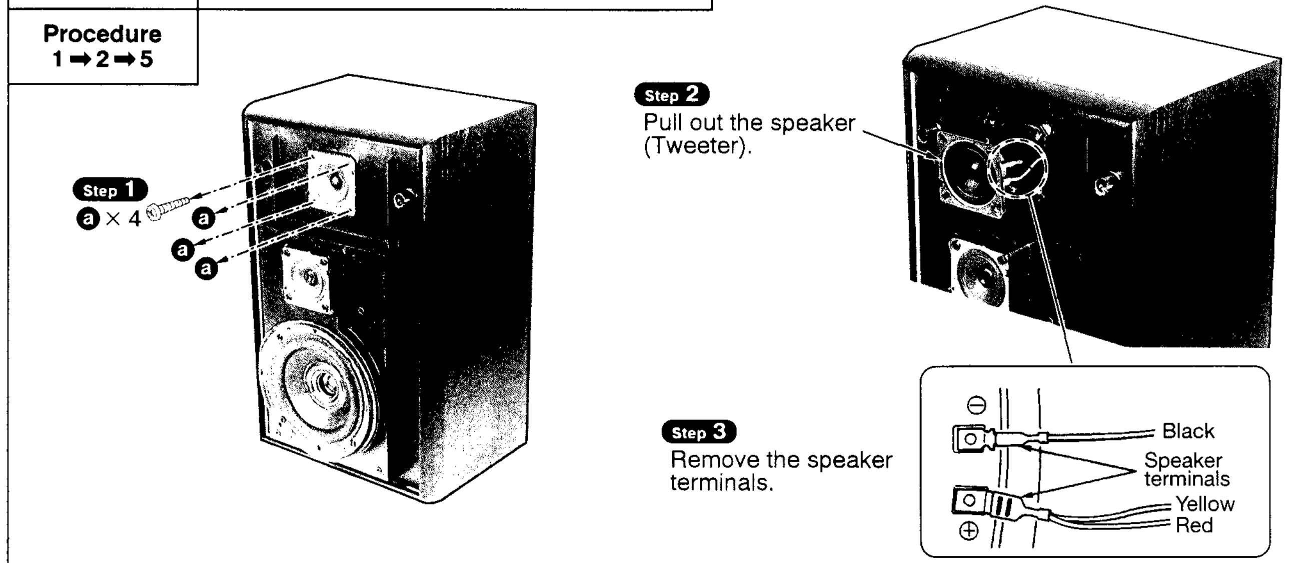
Step 3
Remove the speaker terminals.

Step 2
Pull out the speaker (Midrange).

Ref.No. 5

Removal of the speaker (Tweeter)

Procedure
1 → 2 → 5


ⓐ × 4
ⓐ
ⓐ
ⓐ
⊖
⊕
Black
Speaker terminals
Yellow
Red

Step 1

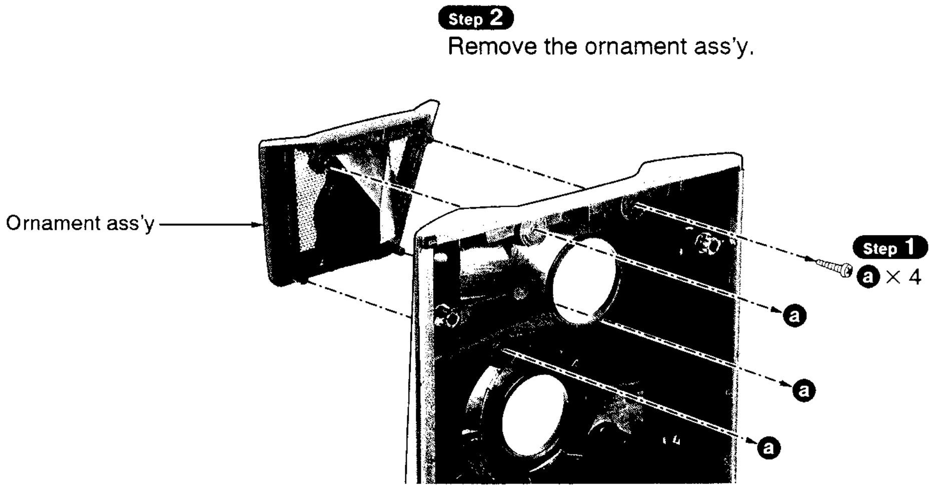
Step 2
Pull out the speaker (Tweeter).

Step 3
Remove the speaker terminals.

Ref.No. 6

Removal of the ornament ass'y

Procedure
1 → 2 → 6


Ornament ass'y
ⓐ × 4
ⓐ
ⓐ
ⓐ

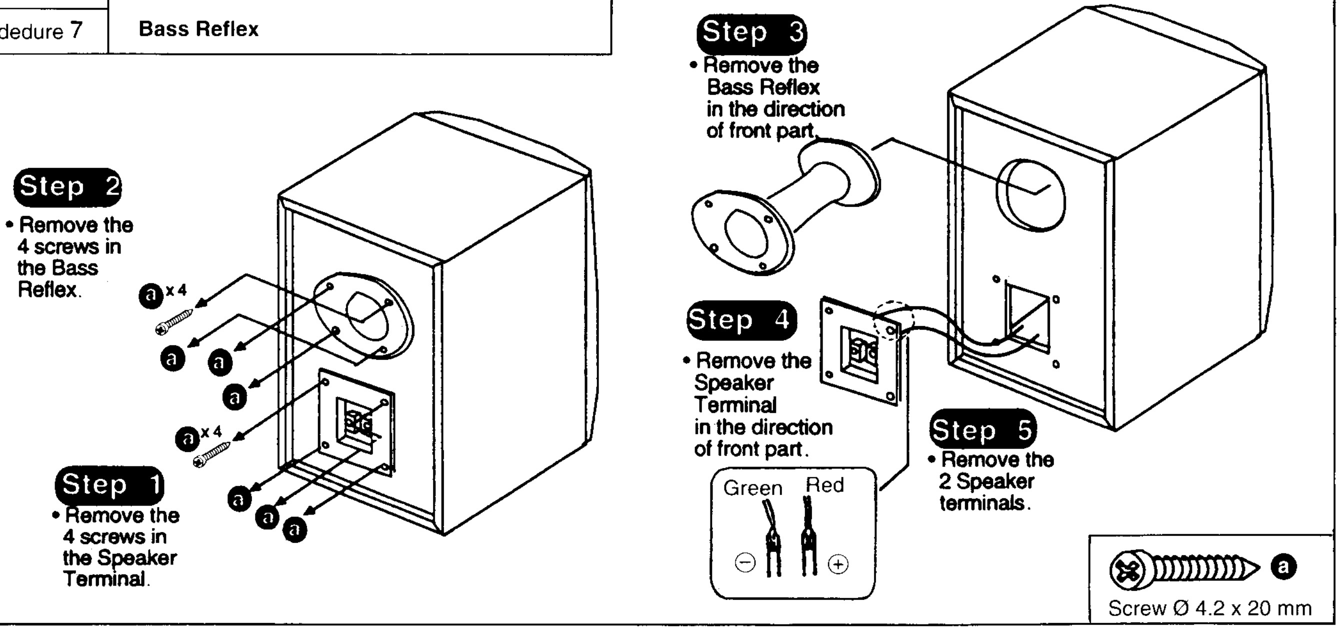
Step 1

Step 2
Remove the ornament ass'y.

Ref. No. 7

Removal of the Speaker Terminal and Bass Reflex

Procededure 7


ⓐ x4
ⓐ
ⓐ
ⓐ
ⓐ x4
ⓐ
ⓐ
ⓐ
Green
Red
⊖
⊕
ⓐ
Screw Ø 4.2 x 20 mm

Step 1
- Remove the 4 screws in the Speaker Terminal.

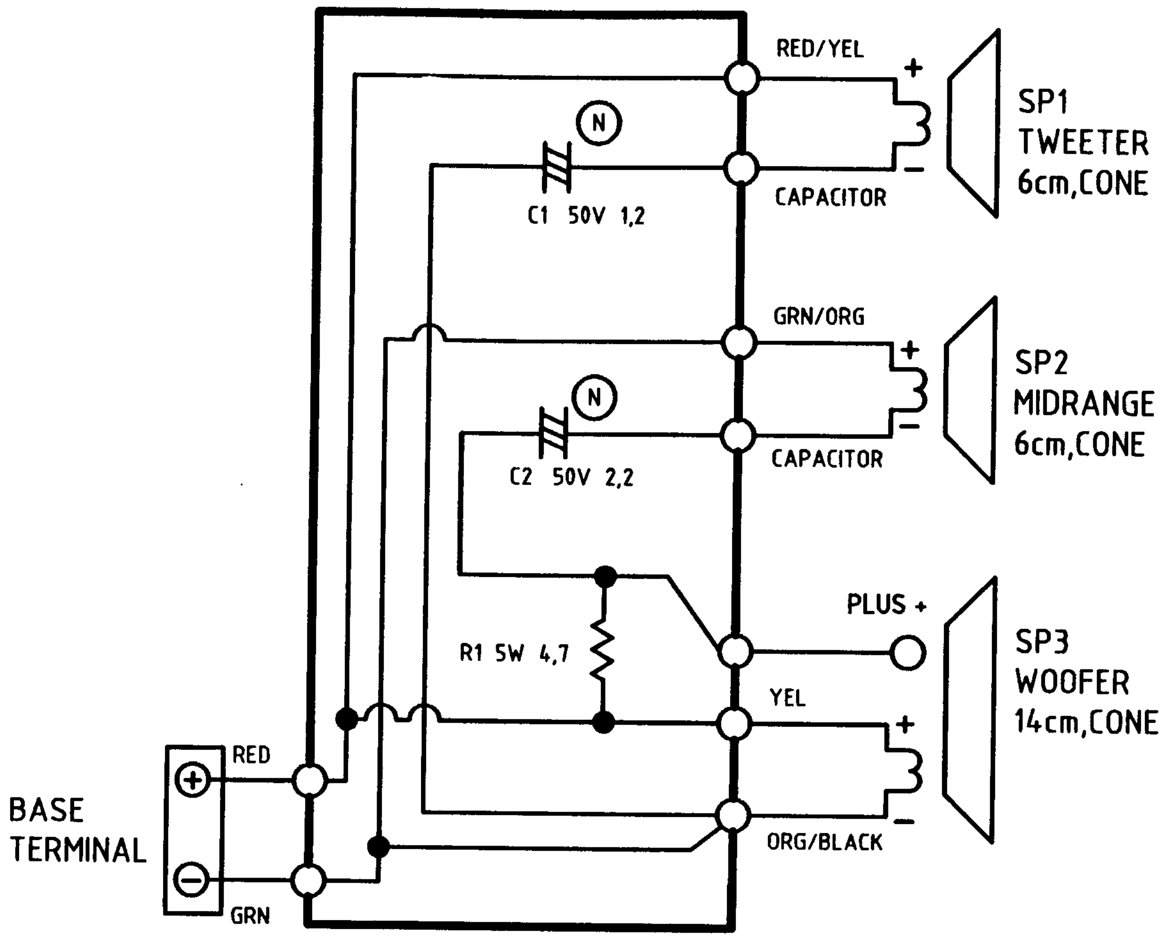
Step 2
- Remove the 4 screws in the Bass Reflex.

Step 3
- Remove the Bass Reflex in the direction of front part.

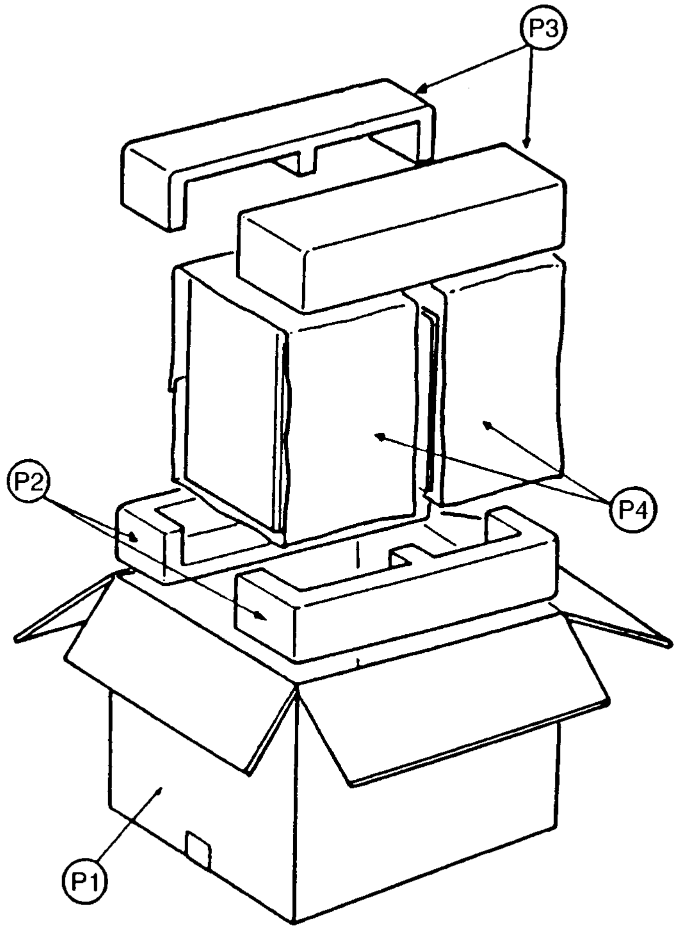
Step 4
- Remove the Speaker Terminal in the direction of front part.

Step 5
- Remove the 2 Speaker terminals.

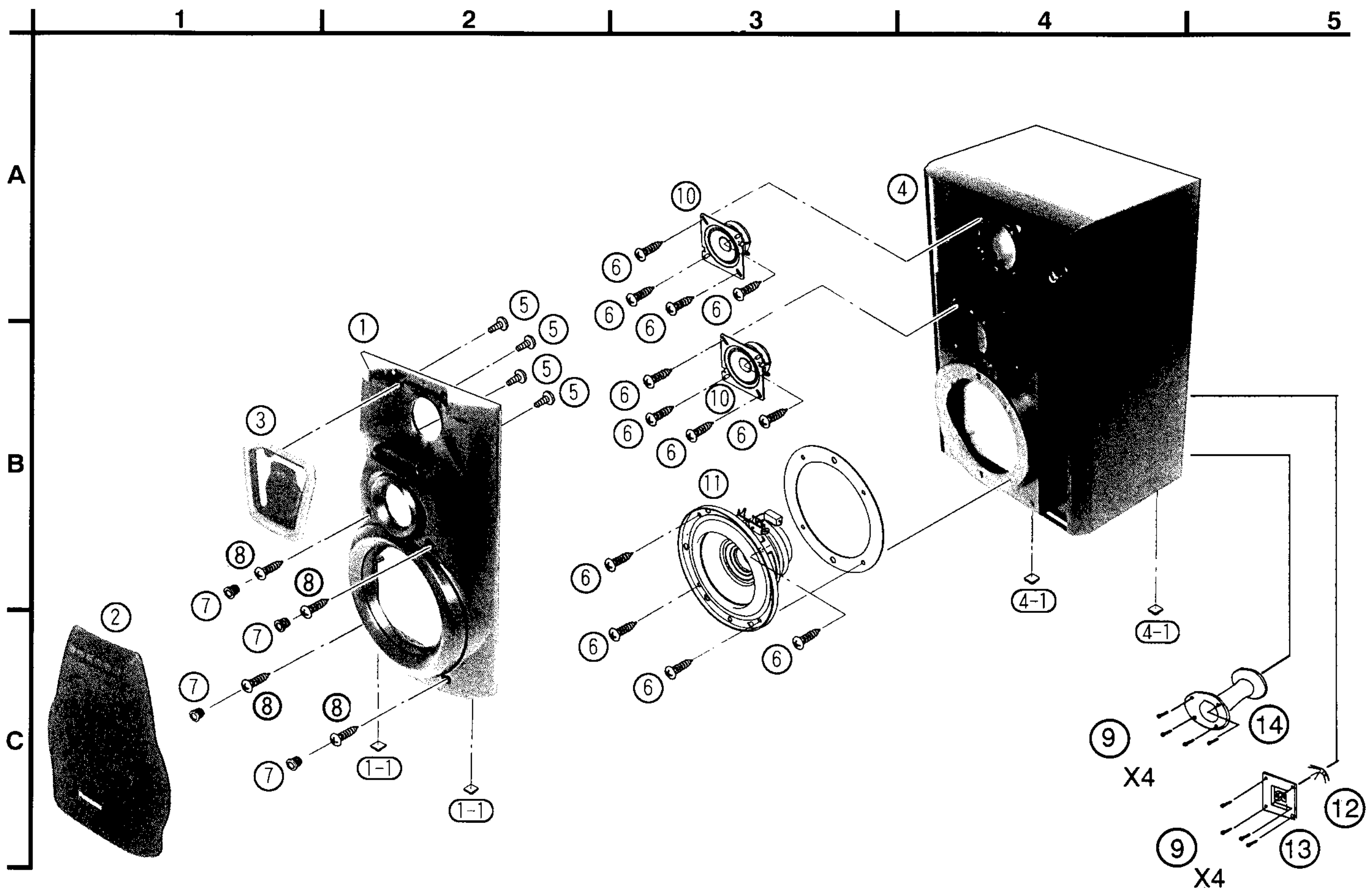
Schematic Diagram


RED/YEL
+
−
SP1
TWEETER
6cm,CONE
N
C1 50V 1,2
CAPACITOR
GRN/ORG
+
−
SP2
MIDRANGE
6cm,CONE
N
C2 50V 2,2
CAPACITOR
PLUS +
SP3
WOOFER
14cm,CONE
R1 5W 4,7
YEL
+
−
BASE
TERMINAL
RED
GRN
ORG/BLACK

Packaging



Cabinet Parts Location


1
2
3
4
5
A
B
C
①
1-1
②
③
④
4-1
⑤
⑥
⑦
⑧
⑨
X4
⑩
⑪
⑫
⑬
⑭

Replacement Parts List

Notes 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. PAES indicates parts that are suplied by PAES.

Nota 1. El código está indicado en la mayoria de las piezas. Por favor use este codigo para sus pedidos.
2. La indicación PAES significa recambios suministrados a través de PAES.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RGP0592-K	FRONT PANEL	PAES
1-1	RKA0072-K	LEGS	PAES
2	SYBPEH60	NET FRAME	PAES
3	RYQ0189-S	ORNAMENT	PAES
4	SYMPEH60	CABINET ASS,Y	PAES
4-1	RKA0072-K	LEGS	PAES
5	XTV32+11J	SCREW ORNAMMENT	PAES
6	XTN42+16	SCREW TW /MID/WF	PAES
7	SHG8G9044	NET HOLDER	PAES
8	XTNP42+20	SCREW FOR F.PANEL	PAES
9	XTNP42+20FG	SCREW B.REF/B.TERM.	PAES
		SPEAKERS	
10	EAS6PH322A6	TWEETER/MIDRANGE	PAES

Ref. No.	Part No.	Part Name & Description	Remarks
11	EAST14PL02A6	WOOFER	PAES
12	REXPEH60	CAPAC./RESIS. ASS'Y	PAES
13	SJHP93-4	BASE TERMINAL	PAES
14	RKTP0029-K	BASS REFLEX	PAES
		RESISTORS / CAPACITORS	
R1	ERF5AK4R7	RESISTOR 5W 4,7Ω	PAES
C1	ECEA50Y2R2IK	CAPACITOR 2,2μF	PAES
C2	ECEA50Y1R2IK	CAPACITOR 1,2μF	PAES
		PACKING PARTS	
P1	SPGPEH60	CARTON BOX	PAES
P2	SPSPEH60AB	PAD DOWN	PAES
P3	SPSPEH60CD	PAD UP	PAES
P4	SPH8G415	SHEET	PAES

PAES Printed in Spain
A97029000XP

ORDER NO. AD9703028C8

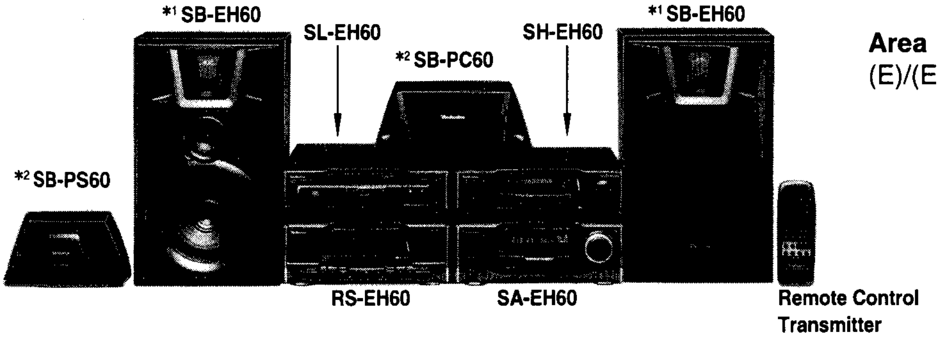
Service Manual

Compact Disc Player

CD Changer

SL-EH60

System: SC-EH60



Colour

(K) .... Black

Area

(E)/(EP) ... Europe, Russia, Asia, Latin America, Middle East, Africa and Oceania.

COMPACT disc DIGITAL AUDIO

MASH*3
multi-stage noise shaping

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

RAE0150Z MECHANISM SERIES

Specifications

Audio Section

DA converter :	1 bit DAC MASH

Pickup Section

Wavelength :	780 nm

General

Dimensions :	287(W)/89(H)/336(D) mm
Weight :	2.4 kg

Notes : Specifications are subject to change without notice.
Weight and dimensions are approximate.

System/SC-EH60:
Sound processor: SH-EH60, Tuner/Amplifier: SA-EH60, Compact disc changer: SL-EH60, Cassette deck: RS-EH60,
Front speakers: *1 SB-EH60, Center speaker: *2 SB-PC60, Surround speakers: *2 SB-PS60

Notes: ∗1...For Europe and Russia : Made in PAES, For others : Made in MESA
∗2...Made in MESA
∗3...MASH is a trademark of NTT

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics®

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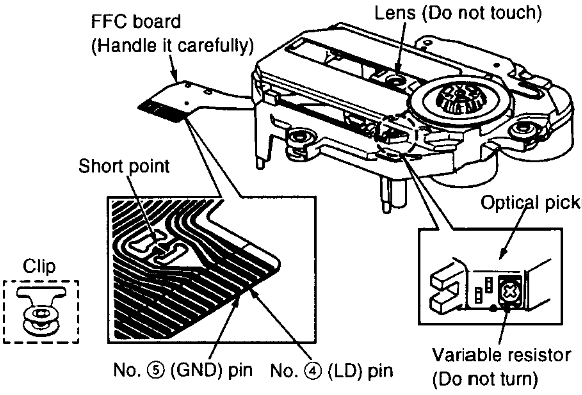
NOTE:
Refer to the service manual for Model No. SA-EH60 (ORDER No. AD9703048C8) for information on "Accessories", "Connections", "Installation", and "Packaging".

CAUTION:
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

■ Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body. So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).



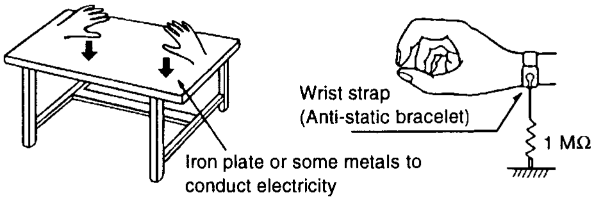
• Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To protect the laser diode against electrostatic breakdown, short the flexible board (FFC board) with a clip or similar object.
3. Take care not to apply excessive stress to the flexible board (FFC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conducive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).


Wrist strap
(Anti-static bracelet)
1 MΩ
Iron plate or some metals to conduct electricity

Caution when Replacing the Traverse Deck:

The traverse deck has a short point shorted with solder to protect the laser diode against electrostatic breakdown. Be sure to remove the solder from the short point before making connections.

■ Precaution of Laser Diode

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 μW/VDE

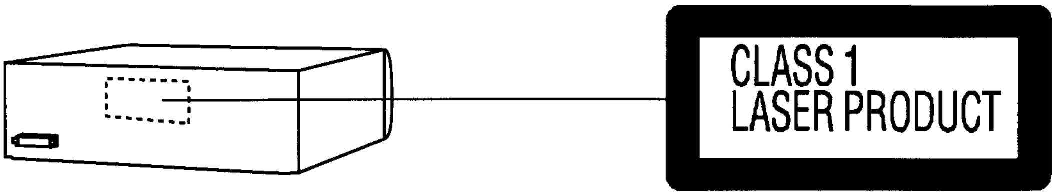
Laser radiation from the pick up unit is safety level, but be sure the followings:

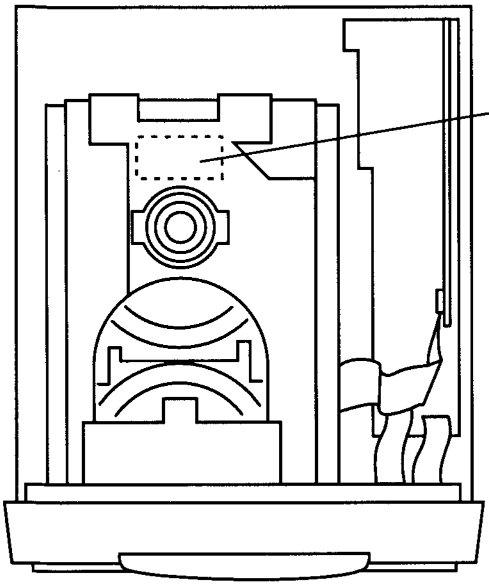
1. Do not disassemble the pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pick up unit. It was already adjusted.
3. Do not lock at the focus lens using optical instruments.
4. Recommend not to lock at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit adgestrahit.
Wellenlänge: 780 nm
Maximale strahlungsleistung der laserinhelt: 100 μW/VDE

Die strahlung an der lasereinheit ist ungefährllch, wenn folgende punkte beachtet werden:

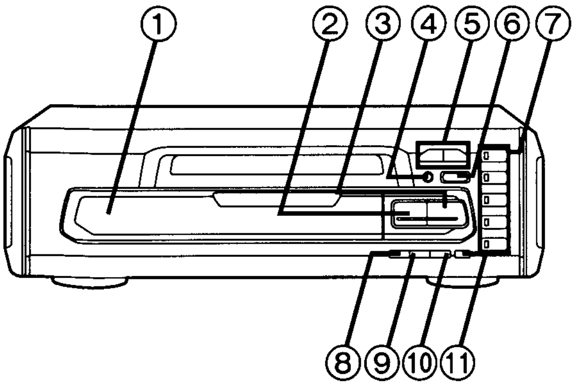
1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefähriich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.





DANGER	INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
ADVERSEL	USYNLIG LASERSTRÅLING VED ÅBNING SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING	OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄRURKOPPLAD. BETRAKTA EJ STRÅLEN.
ADVARSEL	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.

■ Location of Controls



- **① Disc tray**
- **② Stop button (■)**
- **③ Play button and indicator (▷)**
- **④ Pause button (❚❚)**
- **⑤ Skip/search buttons (|◀◀ / ◀◀ ,▶▶ / ▶▶|)**
- **⑥ Disc tray open/close button (▲ , OPEN/CLOSE)**
- **⑦ Disc select buttons and indicators (DISC, 1–5)**
- **⑧ Random play button (RANDOM)**
- **⑨ Repeat button (REPEAT)**
- **⑩ AI edit button (AI EDIT)**
- **⑪ Disc check button (▲ -NEXT/–AUTO)**

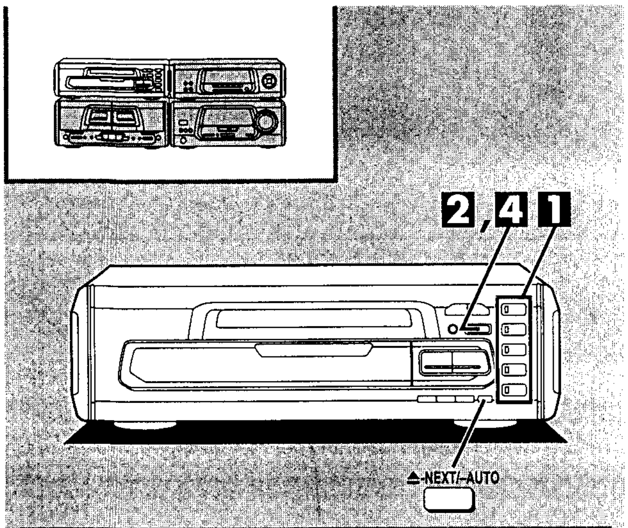
■ How to Set the “Transport Mode”

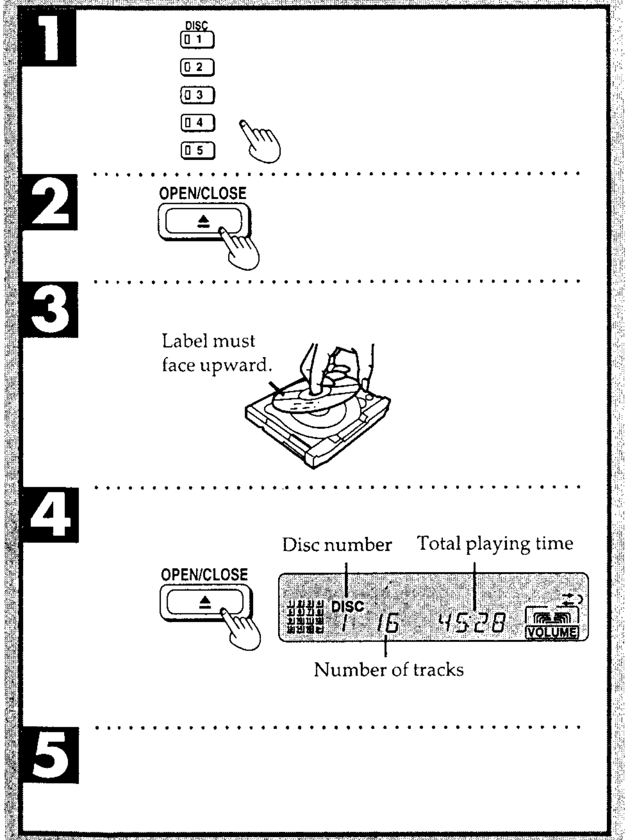
When the alignment of the unit is finished, please make sure to set it to the “Transport Mode” as following procedures;

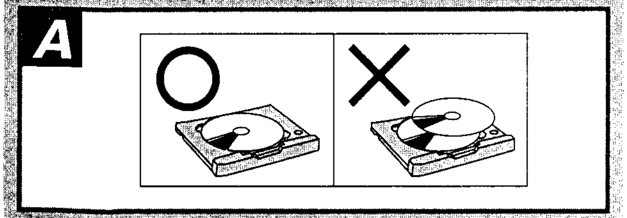
1. Take all CDs out from the unit.
2. With pressing the STOP key for more than 6 seconds.
   The traverse unit is lifted up to the top place, and all the disc trays are fixed automatically.
3. Turn the unit off.

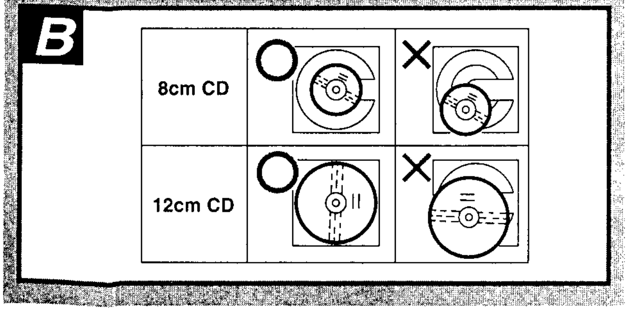
NOTE:
The next time the unit is turned on, the “Transport Mode” is automatically cancelled.

■ Listening to Compact Discs









Always stop the changer before loading or changing CDs. You cannot change CDs while a disc is playing.

How to load CDs

1. **Press DISC 1–5, whichever you want to open.**
2. **Press ▲ OPEN/CLOSE.**
3. **Set the CD in the tray.**
4. **Press ▲ OPEN/CLOSE.**
   The tray will close.
5. **To load other CDs, repeat steps 1 through 4.**

About disc indicators:

The indicator lights as follows.

Green: Indicates that the tray is ready to play its CD or to be opened.

Orange: Indicates that the tray is in a status other than that described above.

How to check which trays have discs

▲ -NEXT/–AUTO is a convenient button to use for this function.

Press ▲ -NEXT/–AUTO.

The first tray to open will be the next one after the disc number shown on the display. For example, when disc 4 is displayed, tray 5 will open.

- Every time you press the button, the next tray opens.
- You can change the CD while the tray is open.
- To close the tray, press ▲ OPEN/CLOSE.

Press and hold ▲ -NEXT/–AUTO.

The trays will open (and close) automatically one after another. The first tray to open will be the next one after the disc number shown on the display. This way, you can check all trays in a row.

- To stop the auto check in course, press ■.

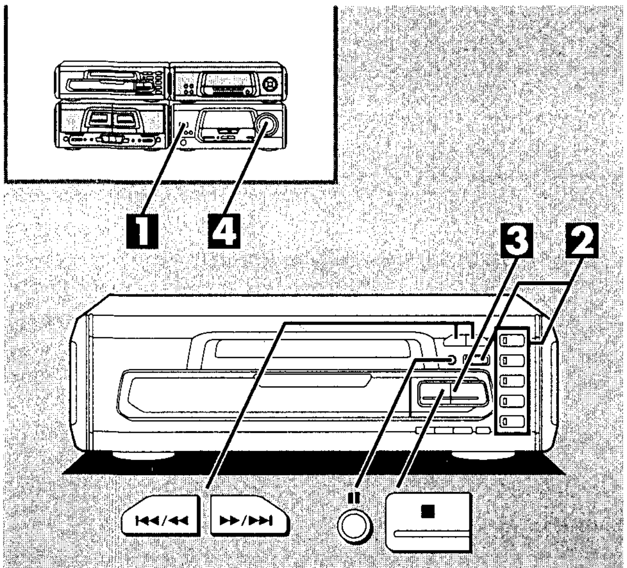
Note

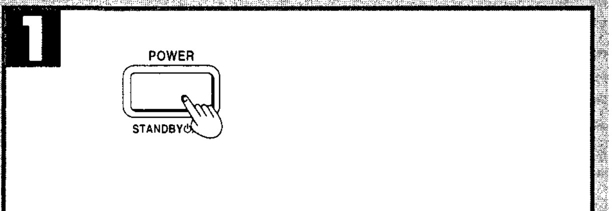
Do not attempt to change CDs while trays are opening and closing in the auto check.

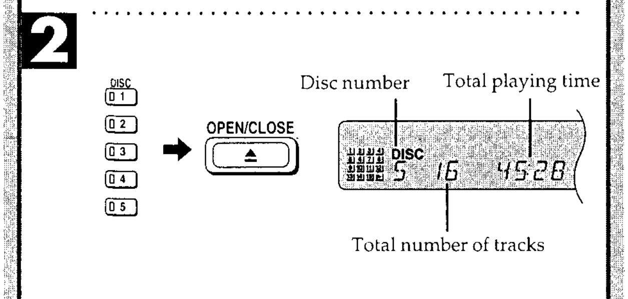
To prevent damage

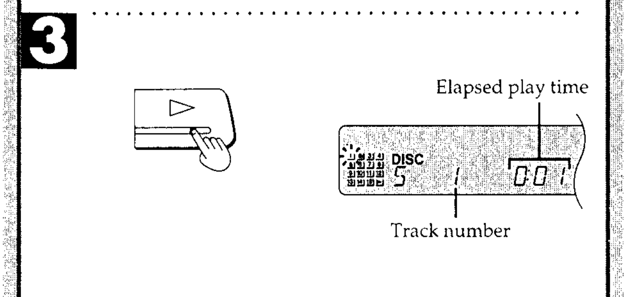
Always observe the following points.

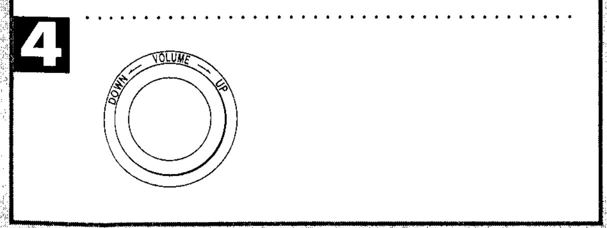
- Load only 1 CD per tray. A
- Load CDs as shown in figure B.
  An adapter is not needed with 8 cm CDs (singles).
- Set the system on a flat, level surface.
  Do not set it on top of magazines, inclined surfaces, etc.
- Do not move the system while trays are opening/closing, or when loaded.
  Always unload all trays before moving the system.
- Do not put anything except CDs in trays.
- Do not use cleaning CDs or CDs which are badly warped or cracked.
- Do not use CDs with poorly attached labels or stickers. Adhesive protruding from underneath stickers or left over from peeled off stickers can cause the system to malfunction.

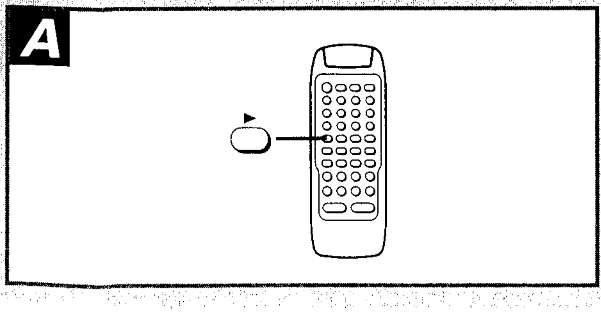












Sequential play

1 Switch on the power.

2 Insert CDs in the trays.

When the "CD" input source is selected, disc number, total number of tracks, and total playing time will appear on the display.
When there are 16 or more tracks on the CD, " ⋙ " will appear.

Note

The total playing time displayed when a disc is loaded includes intervals between tracks. This is why sometimes the displayed time is longer than that listed on the CD.

3 Press ▷.

The changer will automatically play all tracks on all discs. It will start from the first track on the disc shown on the display, and will continue until playing the last track of the final disc (see below).

4 Adjust the volume level as you like.

To stop the disc play:
Press ■.

To temporarily stop the disc play:
Press ❚❚. The play indicator flashes green.
To play again, press ▷.

What is meant by "final disc"?:
For example, if play starts from disc 4, disc 3 will be the "final disc".
Order of progression:
Disc 4→5→1→2→3

About play indicator:
While halted: Lights up orange.
While playing: Lights up green.

For your reference:
If you press ▷ instead of ▲ OPEN/CLOSE after insertinga CD, the tray will close and play will start directly from the track 1.

To search forward/ backward	Hold down during playback. [⏮/◀◀] [▶▶/⏭] (Backward) (Forward)
To skip forward/ backward	Press. [⏮/◀◀] [▶▶/⏭] (Backward) (Forward)

Note

During random play, you cannot skip to tracks which have already been played.

For your reference:
- During program play or random play, you cannot searchforward/ backward over tracks.
- During program play, skipping is in always in the programmed order, whether forward or backward.

One-touch play A

When the system is OFF, playing starts automatically when you press ▶ on the remote control.
The play will start with volume increasing gradually.

Operation Checks and Main Component Replacement Procedures

NOTE

1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**
4. **Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.**

• Contents

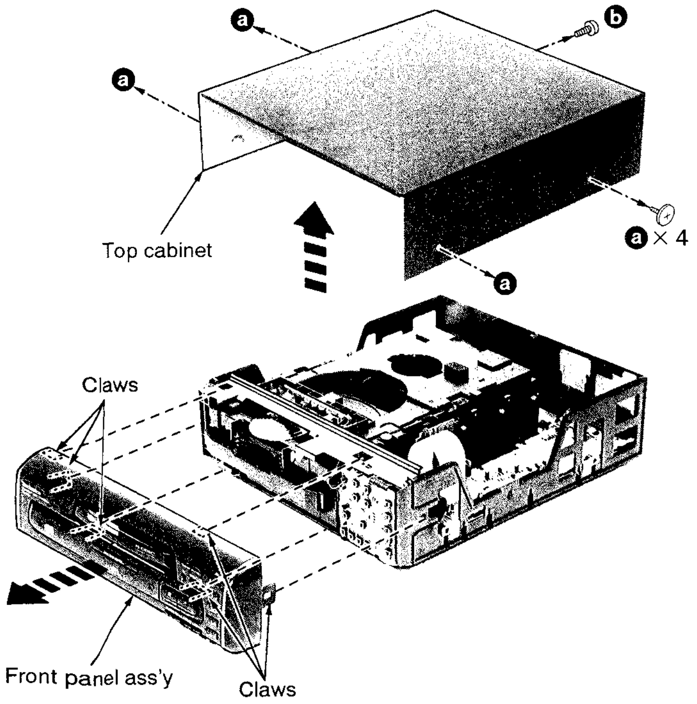
• CD Changer Disassembly / Reassembly page.
1. Removal for the CD changer unit. •••••••• 6,7.
2. Removal for the traverse unit. •••••••• 8.
3. Disassembly for the CD changer unit. •••••••• 8,9.
4. Reassembly for the CD changer unit. •••••••• 10~13.
5. Inspection for the CD changer unit. •••••••• 13.

• Checking Procedures for each P.C.B.
1. Checking for the main P.C.B.. •••••••• 14.
2. Checking for the operation P.C.B.. •••••••• 14,15.
3. Checking for the servo P.C.B.. •••••••• 15,16.

• Main Component Replacement Procedures
1. Replacement for the traverse deck ass'y. •••••••• 16,17.

CD Changer Disassembly / Reassembly

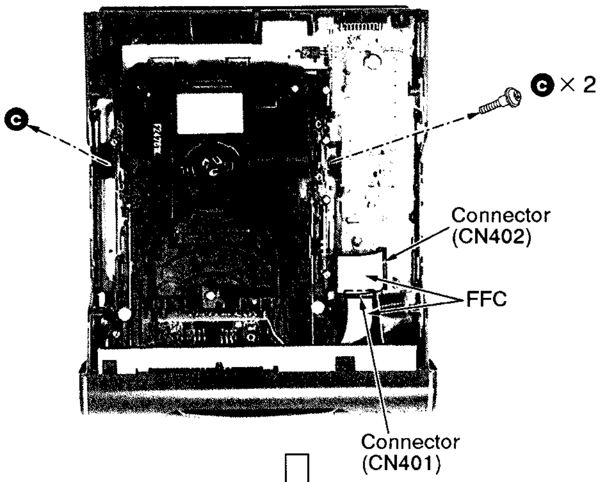
1. Removal for the CD changer unit



Step 1 Remove the 5 screws.

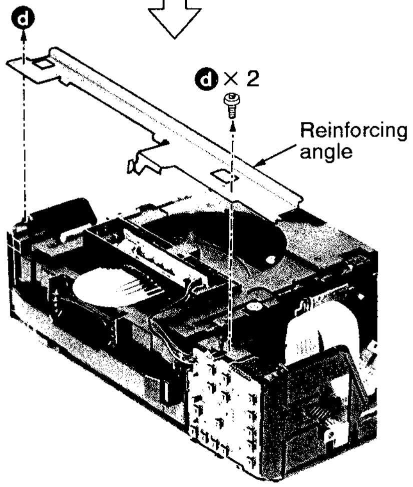
Step 2 Remove the top cabinet.

Step 3 Release the 6 claws, and then remove the front panel ass'y.


c × 2
c
Connector
(CN402)
FFC
Connector
(CN401)

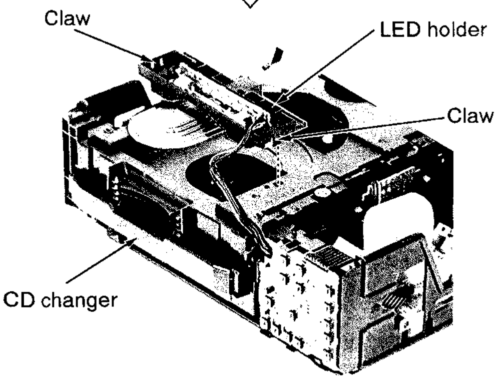
Step 4 Pull out the FFC (2 points).

Step 5 Remove the 2 screws.

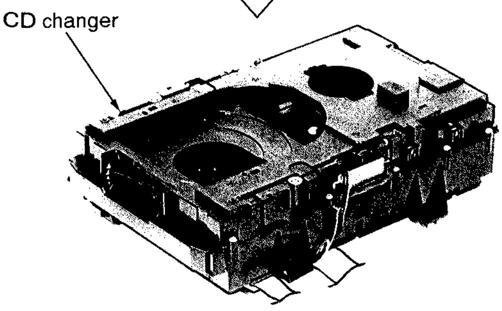

d
d × 2
Reinforcing
angle

Step 6 Remove the 2 screws.

Step 7 Remove the reinforcing angle.


Claw
LED holder
Claw
CD changer

Step 8 Release the 2 claws, and then remove the LED holder.

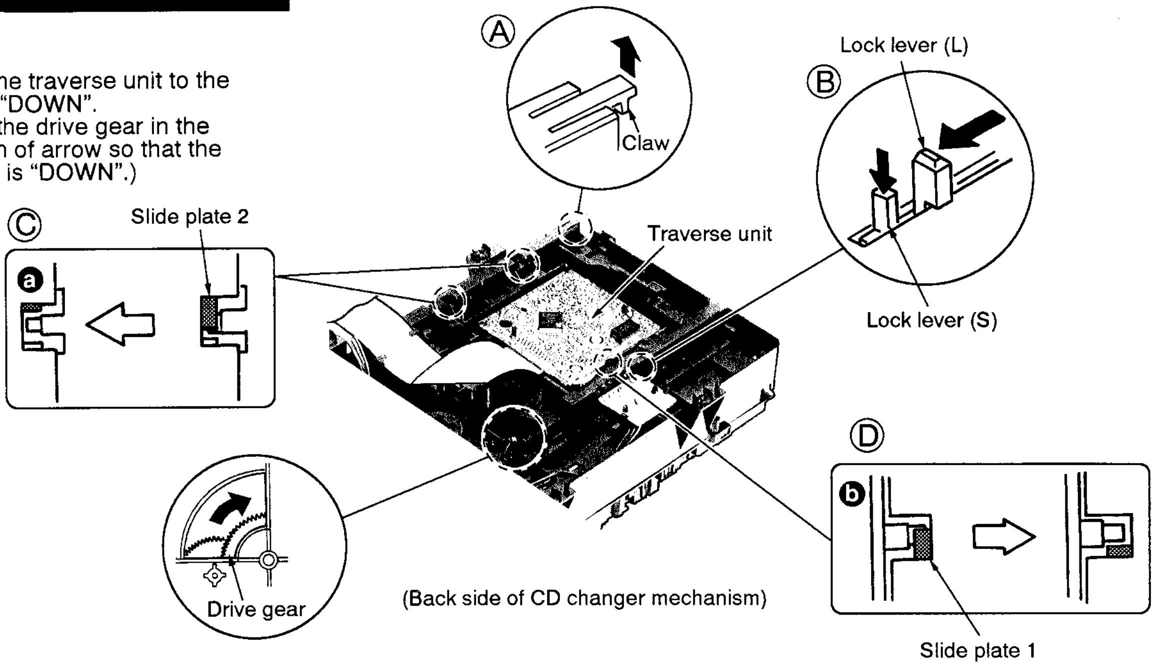


The CD changer unit will be removed.

2. Removal for the traverse unit

NOTE

Locate the traverse unit to the position "DOWN".
(Rotate the drive gear in the direction of arrow so that the position is "DOWN".)


Ⓐ
Claw
Lock lever (L)
Ⓑ
Lock lever (S)
Ⓒ
Slide plate 2
ⓐ
Traverse unit
Ⓓ
ⓑ
Slide plate 1
Drive gear

(Back side of CD changer mechanism)

Procedures

Step 1 Push the lock lever (S) with lifting the claw, and then push the lock lever (L) in the direction of arrow (➡).

Refer to the figures Ⓐand Ⓑ.

Step 2 The slide plate 1 and 2 of traverse retain boss ⓐ and ⓑ are open.

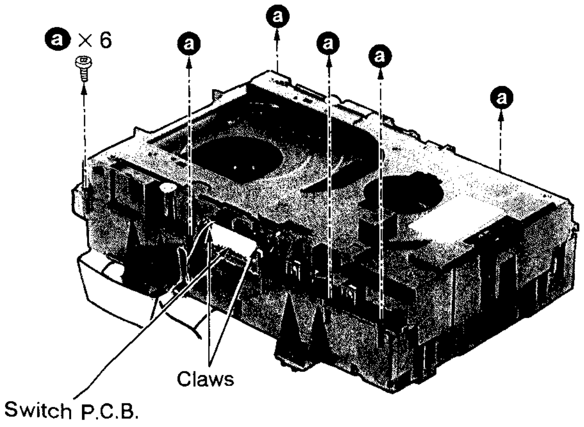
Refer to the figures Ⓒand Ⓓ .

Step 3 Push the traverse unit in the direction of arrow (➡).

(The FFC is connected.)

Step 4 The traverse unit will be removed.

3. Disassembly for the CD changer unit

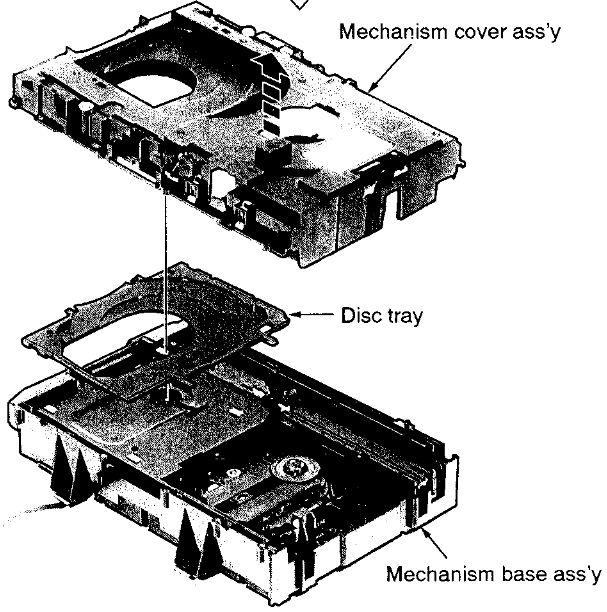

ⓐ × 6
ⓐ
ⓐ
ⓐ
ⓐ
ⓐ
Claws
Switch P.C.B.

NOTE

Locate the traverse unit to the position "DOWN".

Step 1 Release the 2 claws, and then remove the switch P.C.B..

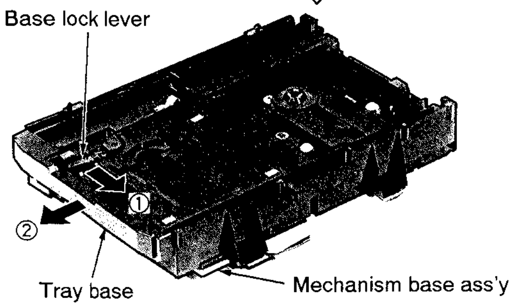
Step 2 Remove the 6 screws.


Mechanism cover ass'y
Disc tray
Mechanism base ass'y

Step 3 Remove the mechanism cover ass'y.

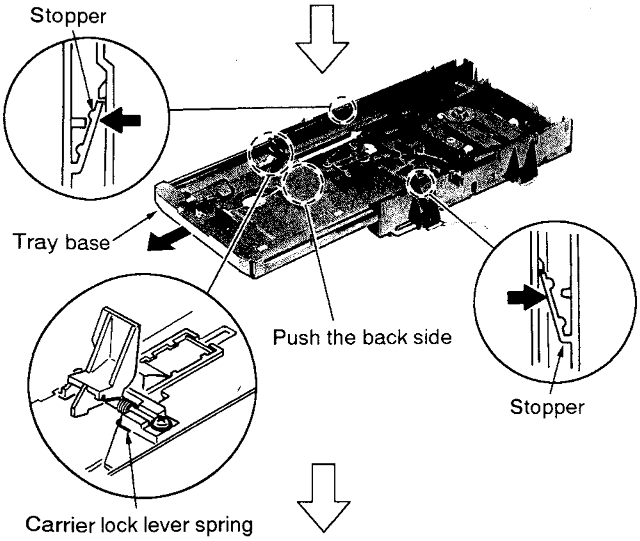
ⓘ 4 disc trays contacted to the mechanism cover ass'y will be removed.
1 disc tray is removed to the mechanism base ass'y.

Step 4 Remove the disc tray sided mechanism base ass'y.


Base lock lever
①
②
Tray base
Mechanism base ass'y

Step 5 Unlock the base lock lever.

Step 6 Draw the tray base until it will be stopped.

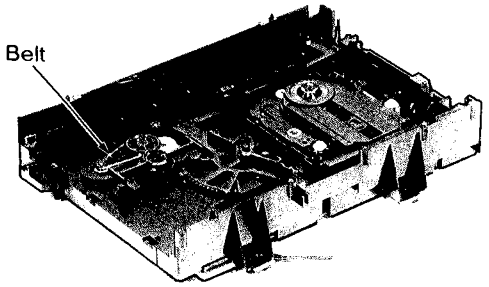

Stopper
Tray base
Push the back side
Stopper
Carrier lock lever spring

Step 7 Release the stopper manually.

Step 8 Draw the tray base.

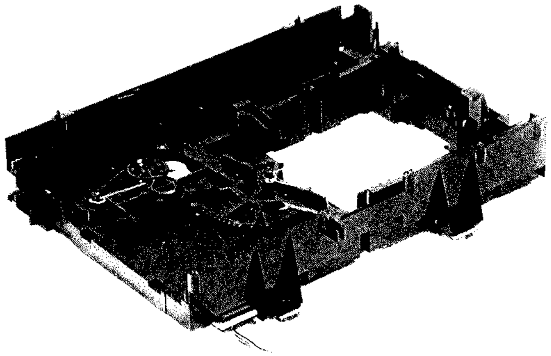
ⓘ In case that the tray base can not be open due to hooking, draw the tray base with finger pressing the back side indicated by ◌ of base. (Take care handling of stopper.)

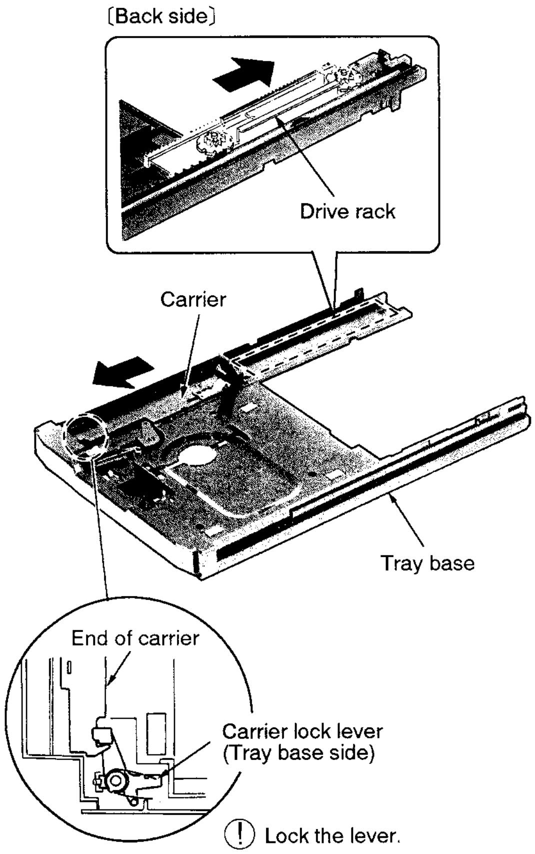
ⓘ Take care not avoid the carrier lock lever spring.



The belt and each part can be replaced after above procedures are performed.

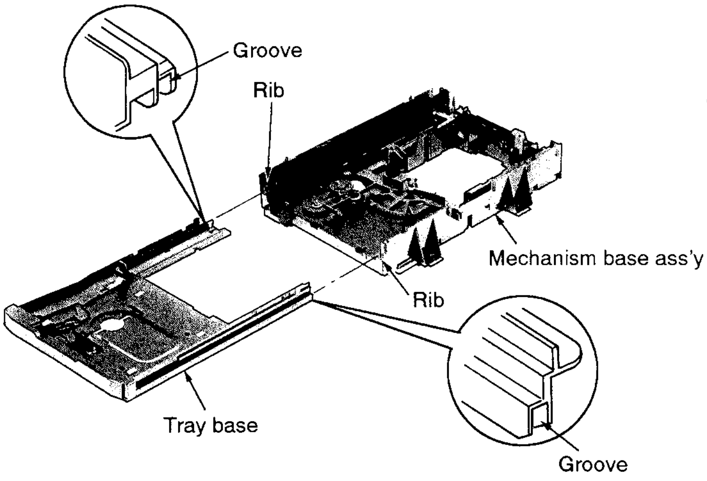
4. Reassembly for the CD changer unit



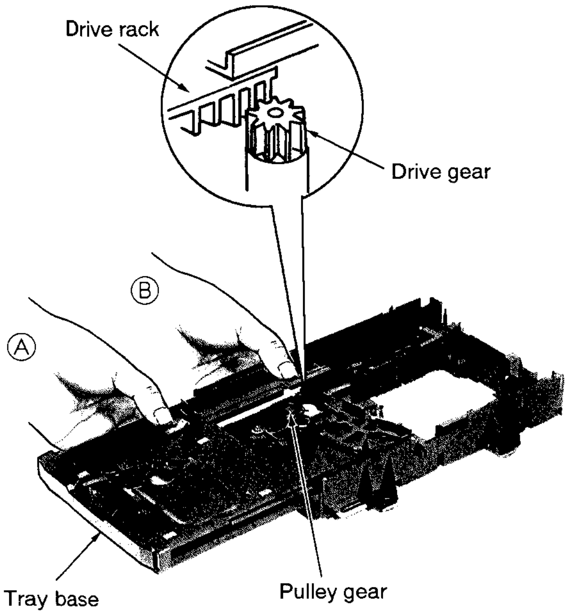

〔Back side〕
Drive rack
Carrier
Tray base
End of carrier
Carrier lock lever
(Tray base side)
(!) Lock the lever.

Step 1 Pull the drive rack in the direction of arrow (➡) fully.

Step 2 Slide the carrier in the direction of arrow (➡).


Groove
Rib
Mechanism base ass'y
Rib
Tray base
Groove

Step 3 Insert the tray base to the mechanism base ass'y with keeping the procedures **Step 1** and **Step 2** .


Drive rack
Drive gear
Ⓑ
Ⓐ
Tray base
Pulley gear

Step 4 ◉

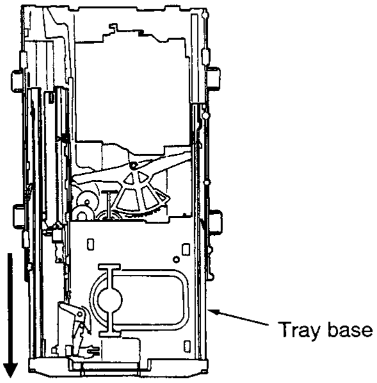
Insert the drive rack until the driver rack interferes with the drive gear.

Position Ⓐ

Step 5 ◉

Rotate the pulley gear clockwise gently by hand (5 or 6 times).

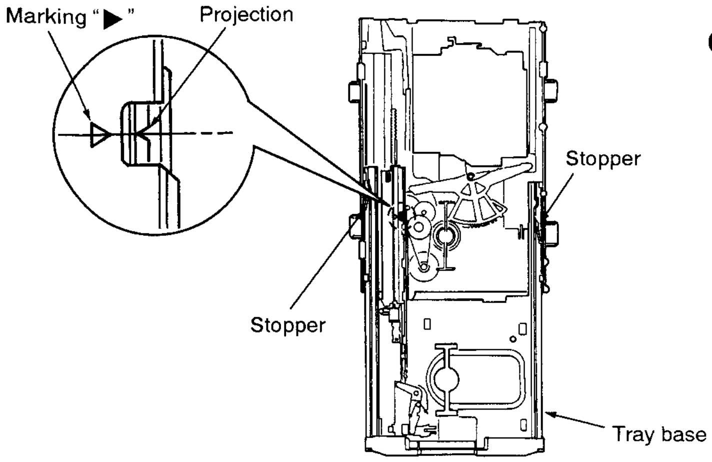
(!) When the gear begins to rotate, rotate the pulley gear with finger pressure (position Ⓑ) because the drive rack gear will fall free.



Step 6

Allow the tray base be open manually.

※ Draw the inserted tray base forward.

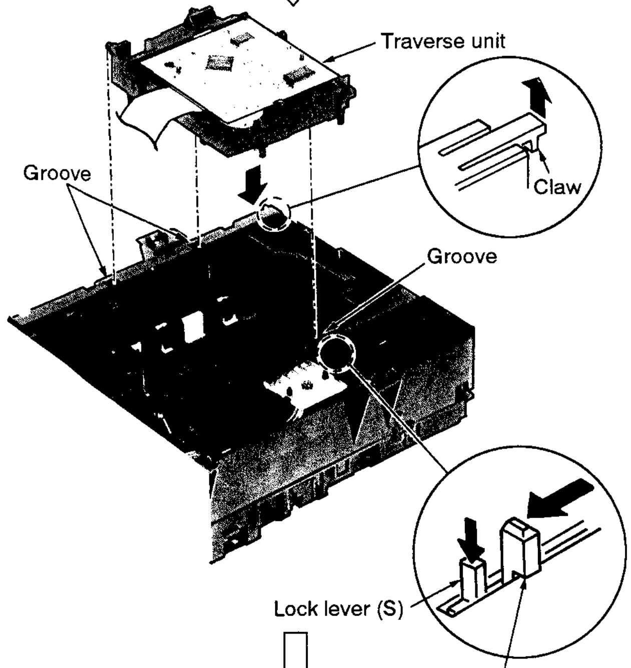

Marking "▶"
Projection
Stopper
Stopper
Tray base

Step 7

Locate the projection at the marking "▶" as shown left.

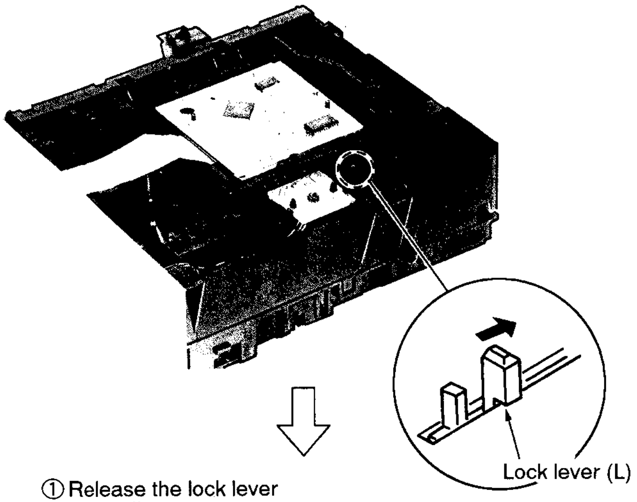
(!) In case that the stated above is not operated draw the tray base again.
(Refer to item (!) on page 9)

(Retry the item marked with ◉)


Traverse unit
Groove
Claw
Groove
Lock lever (S)
Lock lever (L)

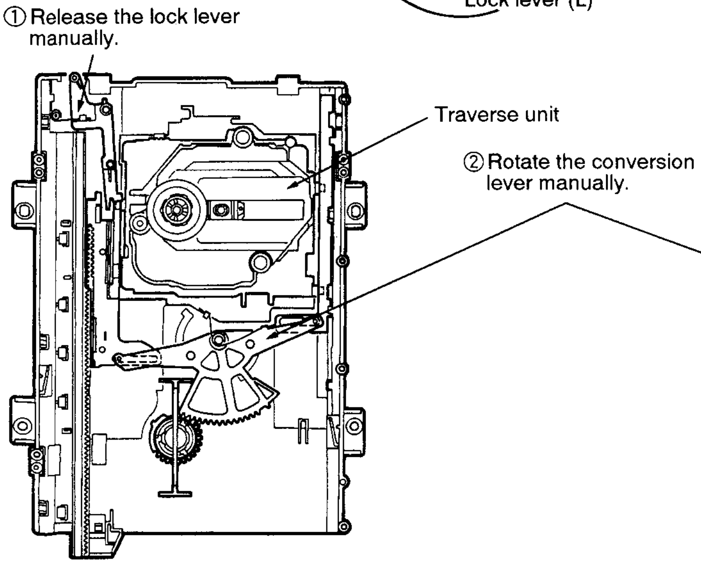
Step 8 While lifting the claw upward, press the lock lever (L) with forcing the lock lever (S).

Step 9 Align the boss of traverse unit with the groove of mechanism base ass'y.

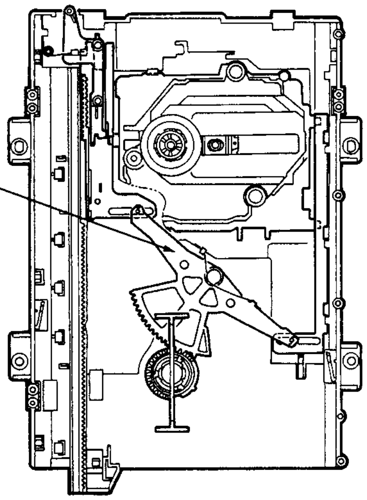

Lock lever (L)

Step 10 Pull the lock lever (L) in the direction of arrow (➡).

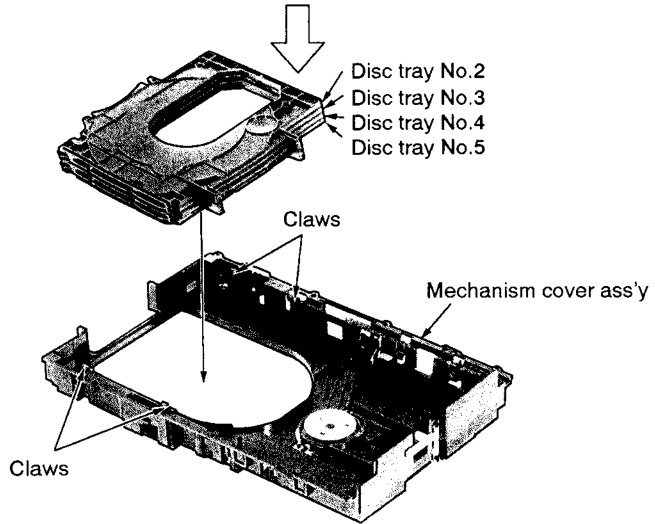
After assembly, confirm the traverse unit operation.


① Release the lock lever manually.
Traverse unit
② Rotate the conversion lever manually.

〈"DOWN"stated〉

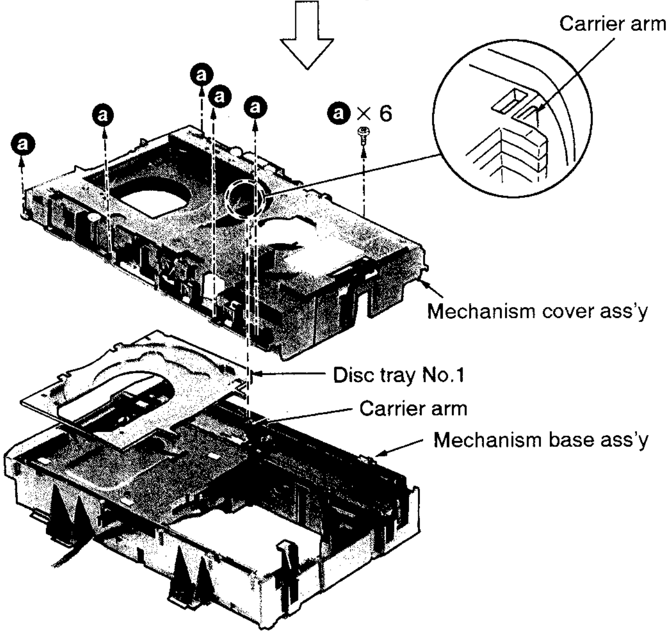


〈"UP"stated〉


Disc tray No.2
Disc tray No.3
Disc tray No.4
Disc tray No.5
Claws
Mechanism cover ass'y
Claws

Step 11 Install the 4 disc trays to the mechanism cover ass'y. (Allow them to lock with claws.)

(!) Install the disc trays in specific order. (Disc tray No. is indicated on the tray.)


Carrier arm
a
a
a
a
a
a × 6
Mechanism cover ass'y
Disc tray No.1
Carrier arm
Mechanism base ass'y

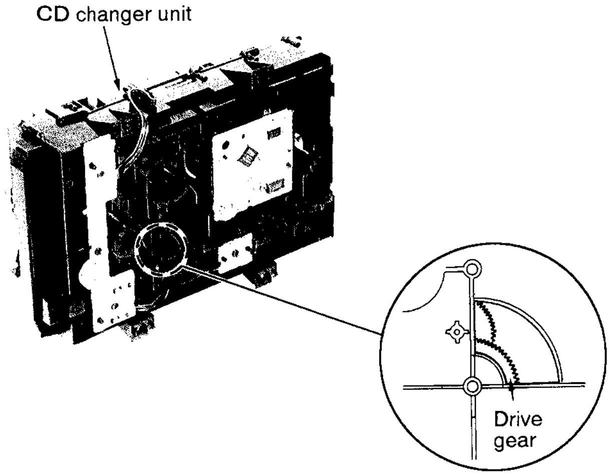
Step 12 Place the disc tray No.1 on the mechanism base ass'y.

Step 13 Install the mechanism cover ass'y.

(!) The carrier arm is positioned as shown left.

5.Inspection for the CD changer unit

- Begin the inspections in condition that the traverse is kept from disc tray. (5 disc trays in the store compartment.)


CD changer unit
Drive gear

※ Manual operations

① Rotate the drive gear counterclockwise manually.

The traverse runs over the disc tray, and rises at maximum level.

② Rotate the drive gear clockwise manually.

The disc tray moves and is stored in upper compartment.

The tray base is open.

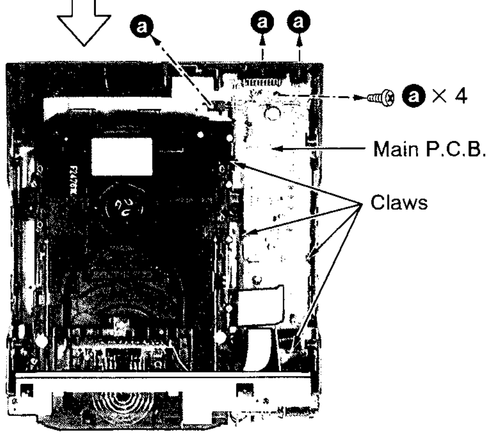
③ Again rotate the drive gear counterclockwise manually.

The tray base is closed, and then it returns to start position.

Checking Procedures for each P.C.B.

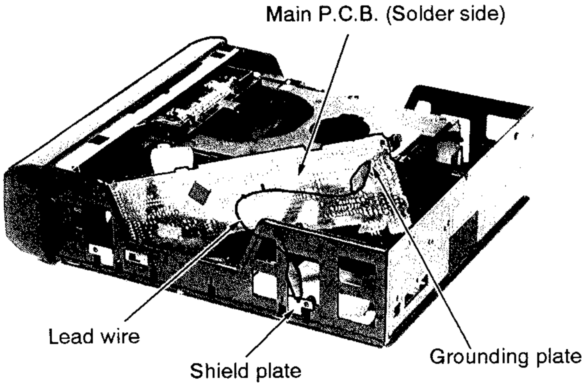
1. Checking for the main P.C.B.

Perform the items **Step 1** and **Step 2** for CD changer removal
(Refer to page 6.)


a
a
a
a × 4
Main P.C.B.
Claws

Step 1 Remove the 4 screws.

Step 2 Remove the 4 claws, and then stand the main P.C.B..


Main P.C.B. (Solder side)
Lead wire
Shield plate
Grounding plate

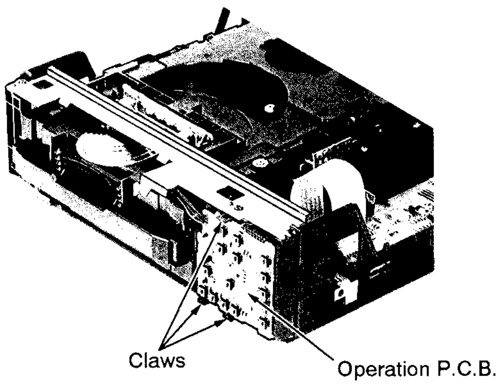
Step 3 Connect the lead wire between the grounding plate and shield plate.

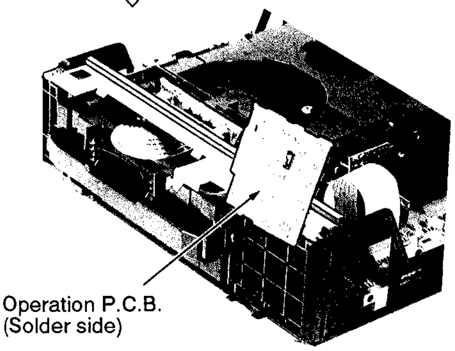
Check the main P.C.B. (solder side) as shown left.

2. Checking for the operation P.C.B.

Perform the items **Step 1** ~ **Step 3** for CD changer removal
(Refer to page 6.)

Step 1 Release the 3 claws, and then upset the operation P.C.B..


Claws
Operation P.C.B.

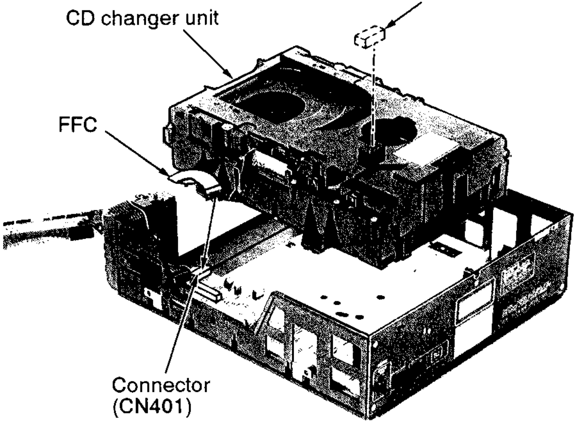

Operation P.C.B.
(Solder side)

Check the operation P.C.B. (solder side) as shown left.

3. Checking for the servo P.C.B.

Perform the items **Step 1** ~ **Step 8** for CD changer removal
(Refer to pages 6 and 7.)

Perform the items **Step 1** ~ **Step 4** for traverse unit removal
(Refer to page 8.)

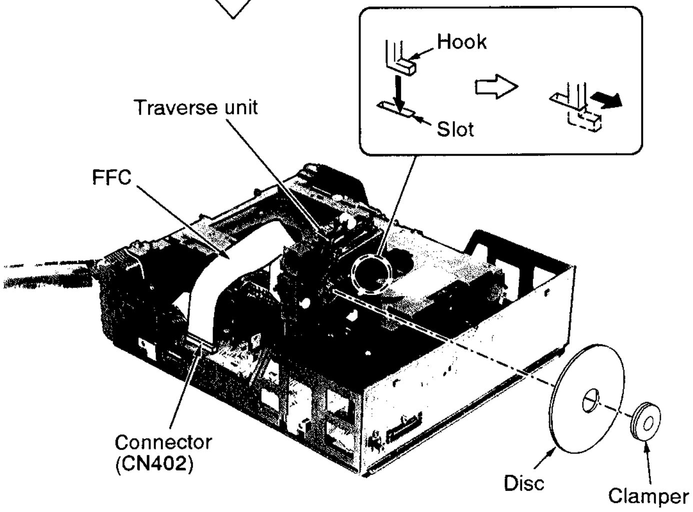

Rubber
CD changer unit
FFC
Connector
(CN401)

Step 1 Install the CD changer unit to the set.

ⓘ Screw tighten is not necessary.

Step 2 Connect the FFC to the connector (CN401).

Step 3 Remove the rubber.

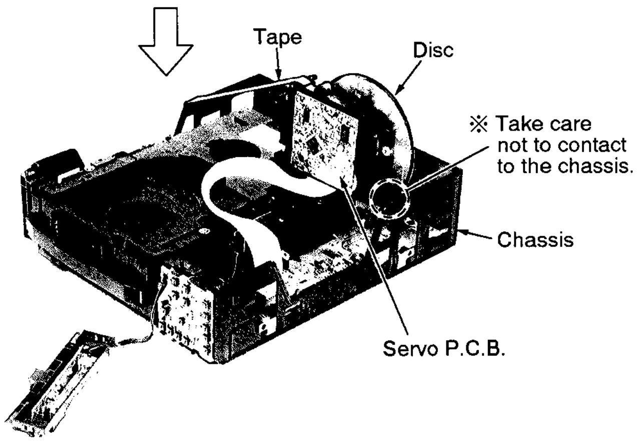

Hook
Slot
Traverse unit
FFC
Connector
(CN402)
Disc
Clamper

Step 4 Align the hook of traverse unit with the slot, and then stand it.

Step 5 Attach the disc and clamper with magnet to the traverse unit.

ⓘ Prepare the clamper used ordinaly.

Step 6 Connect the FFC to the connector (CN402).


Tape
Disc
※ Take care not to contact to the chassis.
Chassis
Servo P.C.B.

Step 7 Apply the tape between the chassis and traverse unit not to contact the disc with chassis.

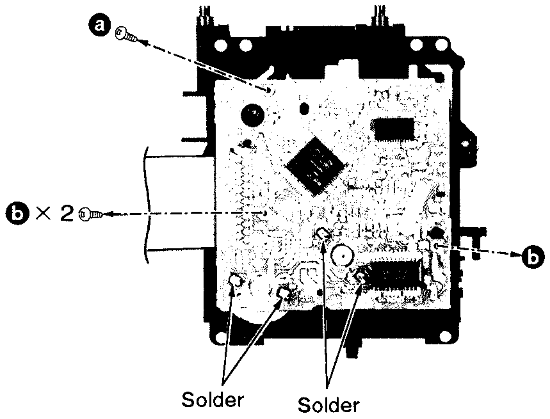
Check the servo P.C.B. (solder side) as shown left.

Main Component Replacement Procedures

1. Replacement for the traverse deck ass'y

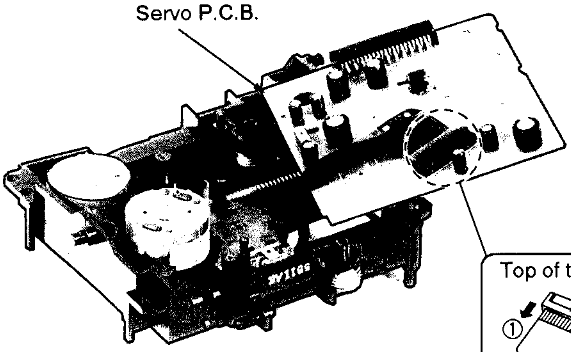
Perform the items **Step 1** ~ **Step 8** for CD changer removal (Refer to pages 6 and 7.)

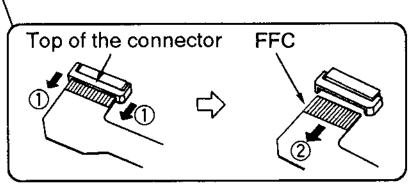
Perform the items **Step 1** ~ **Step 4** for traverse unit removal (Refer to page 8.)


ⓐ
ⓑ × 2
ⓑ
Solder
Solder

Step 1 Remove the 3 screws.

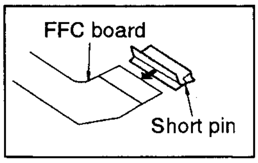
Step 2 Unsolder the motor terminals.



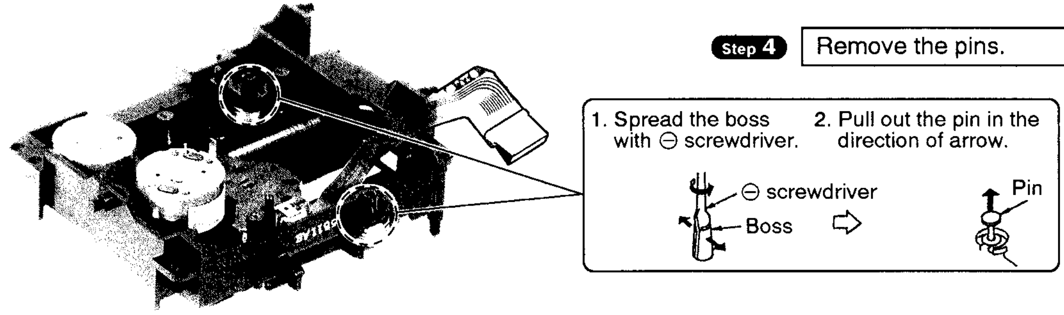

Top of the connector
FFC
①
①
②

Step 3 Remove the FFC from the connector, and then remove the servo P.C.B..

Caution:
Insert a short pin into the traverse unit FFC board.
(Refer to "Hnading Precautions for Traverse Deck" on page 2.)

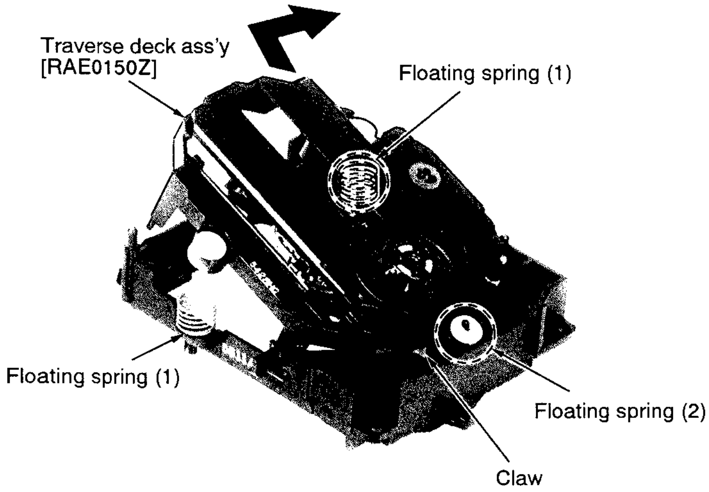

FFC board
Short pin

Step 4 Remove the pins.



1. Spread the boss with ⊖ screwdriver.
2. Pull out the pin in the direction of arrow.

⊖ screwdriver
Boss
Pin


Traverse deck ass'y
[RAE0150Z]
Floating spring (1)
Floating spring (1)
Floating spring (2)
Claw

Step 5 Release the claws, and then remove the traverse deck ass'y.

ⓘ Be careful not to lose the 3 springs because those will also be removed on removal of the traverse deck ass'y.

Installation of the servo P.C.B.

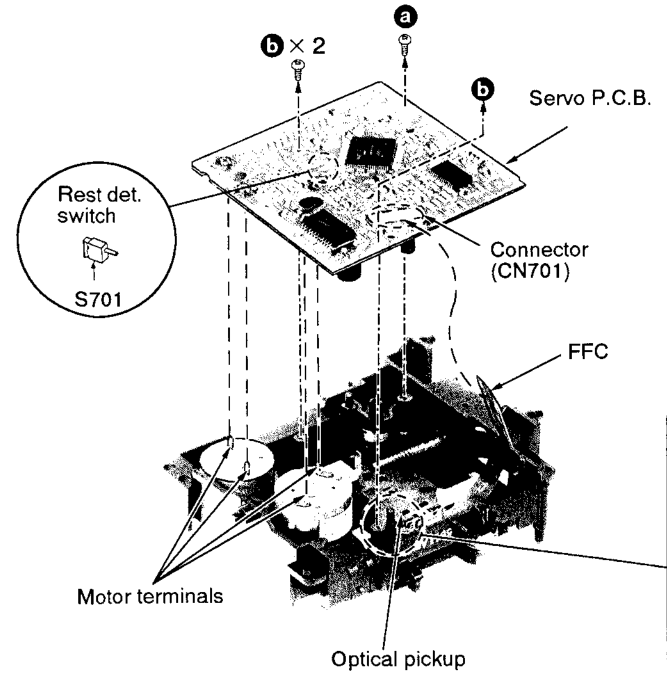
Step 1 Before installing the servo P.C.B., move the optical pickup toward the outer edge from mark "◀".

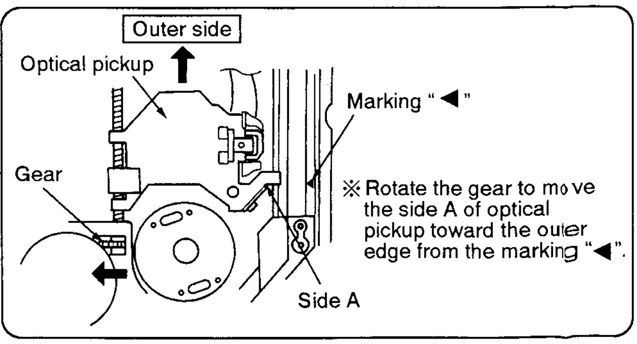
ⓘ In case that the optical pickup is not moved toward the outer edge from the marking, the rest detect switch (S701) mounted on the servo P.C.B. may be damaged.

Step 2 Connect the FFC to the connector.

Step 3 Install the servo P.C.B., and then tighten screws.

ⓘ After tightening screws, solder each motor terminal.


ⓑ × 2
ⓐ
ⓑ
Servo P.C.B.
Rest det. switch
S701
Connector (CN701)
FFC
Motor terminals
Optical pickup


Outer side
Optical pickup
Marking "◀"
Gear
Side A

※ Rotate the gear to move the side A of optical pickup toward the outer edge from the marking "◀".

■ Error Code Display and Servo Adjustment Function

This unit has an error code display function, so that if the unit operates incorrectly, the fault is displayed using an error code on the FL display of the Tuner/Amplifier (SA-EH60). It also has a servo adjustment function for displaying the status of servo system functions (Focus, Tracking, CLV Servo) on the FL display of the Tuner/Amplifier.
The system control IC and FL display are part of the Tuner/Amplifier so make sure the system has been connected properly before using three functions. (This unit can be operated independently, although the error code display and servo adjustment functions cannot be used.)
Use these two functions for guidance during fault diagnosis and repair.

Note:
Check beforehand for scratching or soiling of the test disc (SZZP1054C), and soiling or other problems with the pickup lens.

● Error code display procedure

Automatic adjustment results

Turn the power ON.

↓

Load the test disc (SZZP1054C).

↓

Hold down the REPEAT button for at least 2 seconds, and then press the STOP button for at least 2 seconds while continuing to hold down the REPEAT button.

↓

A servo section error code is displayed. (See **Table 2**.)
Use this error code display as a guideline for finding the malfunction point in the servo circuitry. If the error code **"E-00"** is displayed, the unit is "OK (No problem)."

↓

Checking the mechanism switches

Press the F. SKIP button.

↓

A mechanism OK/NG error code is displayed. (See **Table 1**.)
This error code can be used diagnose whether or not the mechanism is OK. If there are multiple errors, these can be displayed successively by pressing the F. SKIP button.

↓

Remove the disc and turn the power OFF. (The error code display mode is canceled.)

● Servo adjustment procedure

Turn the power ON.

↓

Load the test disc (SZZP1054C).

↓

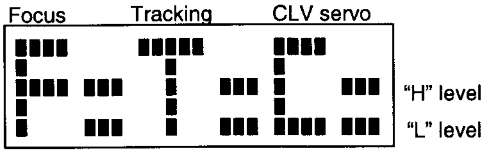
Hold down the REPEAT button for at least 2 seconds, and then press the PAUSE button for at least 2 seconds while continuing to hold down the REPEAT button.

↓

Press the ▶ (PLAY) button, and play for 10 seconds.

↓

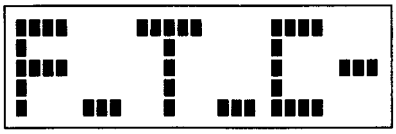
Servo adjustment results are displayed.



↓

Remove the disc and turn the power OFF.

(Example)



⇒ Normal

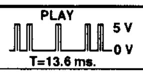
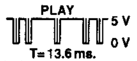
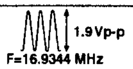
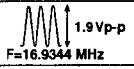
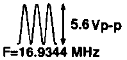
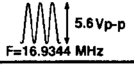
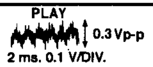
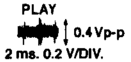
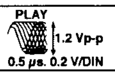
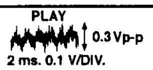
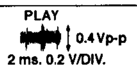
	"L" level	"H" level
Focus system	normal	defective
Tracking system	normal	defective
CLV servo system	defective	normal

• Table 1

FL display	Symptom	Cause
H-15	When CD tray opens, it closes by itself.	Disc tray "Open" detection switch (S4) fault.
H-16	When CD tray close, it opens by itself.	
F-15	Does not play, even when CD play button is pressed.	Pickup rest position detection switch (S701) fault.
F-16	Traverse pushes up disc tray.	Up position detection switch (S3) fault.
F-26	Does not move even when " ▶ " (PLAY) button is pressed.	System control or servo processor IC (IC901, IC702) fault.
F-27	Tray keeps moving for a while, or selected tray does not open.	Disc number detection switch (S5) fault.
F-28		Stocker position detection, or play position detection switch (S1, S2) fault
F-75	NO DISC is displayed and unit does not play, even when a CD is loaded.	CD circuit power supply problem.

• Table 2

※ The unit is satisfactory if the error code is **"E-00"** or **"E02"**.
※ Before testing, check that the test disc is free of scratches and optical pickup is clean.

FL error code display	Symptom	Probable cause	Signal to check		Normal voltage and waveform values	
			Location	Signal name	PLAY	STOP
E-01	Focus and tracking offset adjustments not completed in specified time period.	①Clocks X1 and X2, power supply VDD, and reset (/RST), all on IC702. ②MDATA, MCLK, MLD, and SENSE signals to/from mechanism controller.	IC702 ⑧ pin	MDATA		0 V
			IC702 ⑦ pin	MCLK		4.8 V
			IC702 ⑨ pin	MLD		
			IC702 ⑩ pin	SENSE	0 V	0 V
			IC702 ⑱ pin	/RST	4.9 V	4.9 V
			IC702 (58) pin	X1		
			IC702 (59) pin	X2		
E-02 E-03 E-05 E-06 E-07 E-09 E-0A E-0B E-0D E-0E E-0F	Disc play unstable	①Scratches or contaminants on disc surface ②Focus and Tracking servo circuits (check waveforms, voltages, and part values.) ③Spindle driver circuit ④Optical pickup	IC702 ㉜ pin	F E		2.5 V
			IC702 ㉝ pin	T E		2.5 V
			IC702 ㉘ pin	FOD	2.5 V	2.5 V
			IC702 ㉗ pin	TRD	2.5 V	2.5 V
			IC702 ㉖ pin	KICK	2.5 V	2.5 V
			IC702 ⑪ pin	/FLOCK	0 V	4.9 V
			IC702 ㊳ pin	/RF DET	0 V	4.9 V
			TJ701	R F		2.4 V
			IC702 ⑰ pin	STAT	4.9 V	0 V
E-04 E-08 E-0C	Focus or Tracking gain adjustment not completed in specified time period.	①Scratches or contaminants on disc surface ②Focus servo circuit (check waveforms, voltages, and part values.) ③Optical pickup	IC702 ㉜ pin	F E		2.5 V
			IC702 ㉝ pin	T E		2.5 V
			IC702 ㊱ pin	O F T	0 V	0 V
			IC702 ⑫ pin	/TLOCK	0 V	0 V

■ To Supply Power Source

Cautions:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens.
- Avoid exposure to the laser beam, especially when performing adjustments.

This unit SL-EH60 is designed to operate on power supplied from the Tuner/Amplifier (SA-EH60) through the Cassette Deck RS-EH60.
When connecting the unit to other system components, do not connect to the Tuner/Amplifier SA-EH60 directly. Be sure to connect this unit through the Cassette Deck RS-EH60.
When operating the unit SL-EH60 alone for testing and servicing, without having power supplied from the Tuner/Amplifier SA-EH60 and the Cassette Deck RS-EH60, use the following method.

Power Supply to This Unit Alone

Apply +10 V DC power to the section between L1 (DC10V) and E1(GND). **(Shown in Fig.1)**

To Check Signals

Connect the oscilloscope or the speaker with built-in amplifier to the section between LINE OUT (L-ch) of the resistor **R447** and the GND as well as the section between LINE OUT (R-ch) of the resistor **R448** and the GND and check if the signals are outputting from this unit. **(Shown in Fig. 1)**

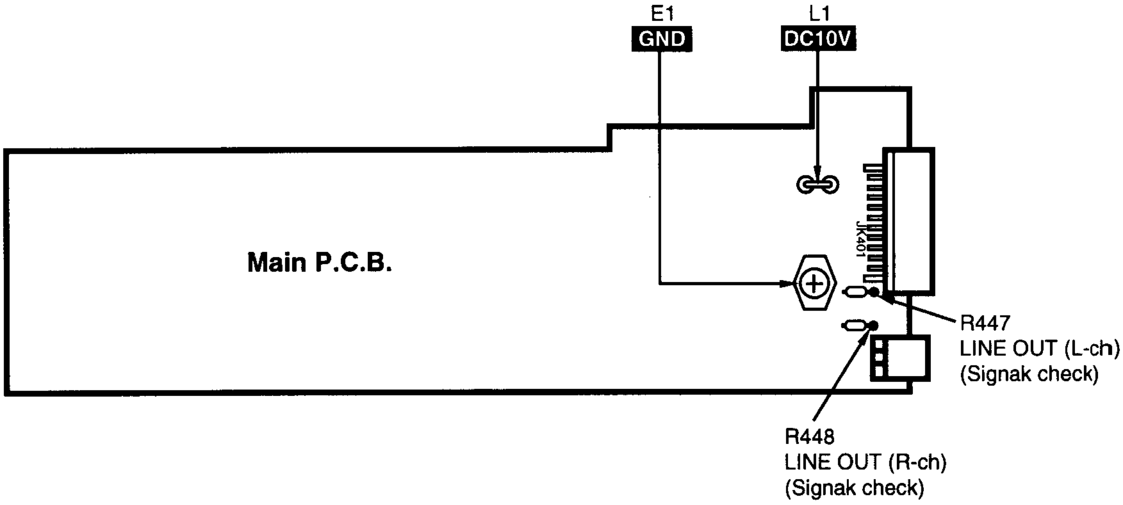


Fig. 1

■Schematic Diagram

Page
A SERVO CIRCUIT 22, 23
B SWITCH CIRCUIT 24
C SWITCH (S2, S3) CIRCUIT 24
D LED CIRCUIT 24
E LOADING MOTOR CIRCUIT 24
F OPERATION CIRCUIT 24
G MAIN CIRCUIT 24, 25

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S1** : Stocker position detect switch
- **S2** : Play position detect switch
- **S3** : Up position detect switch
- **S4** : Tray open detect switch
- **S5** : Disc number detect switch
- **S601** : Disc select switch (DISC 5)
- **S602** : Disc select switch (DISC 4)
- **S603** : Disc select switch (DISC 3)
- **S604** : Disc select switch (DISC 2)
- **S605** : Disc select switch (DISC 1)
- **S606** : Disc check switch (⏏ -NEXT/–AUTO)
- **S607** : Repeat switch (REPEAT)
- **S608** : AI edit switch (AI EDIT)
- **S609** : Random play switch (RANDOM)
- **S610** : R. Skip/Search switch (⏮/⏪)
- **S611** : Stop switch (■)
- **S612** : Play switch (▶)
- **S613** : F. Skip/Search switch (⏩/⏭)
- **S614** : Pause switch (❚❚)
- **S615** : Disc tray open/close switch (⏏ OPEN/CLOSE)
- **S701** : Rest switch

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

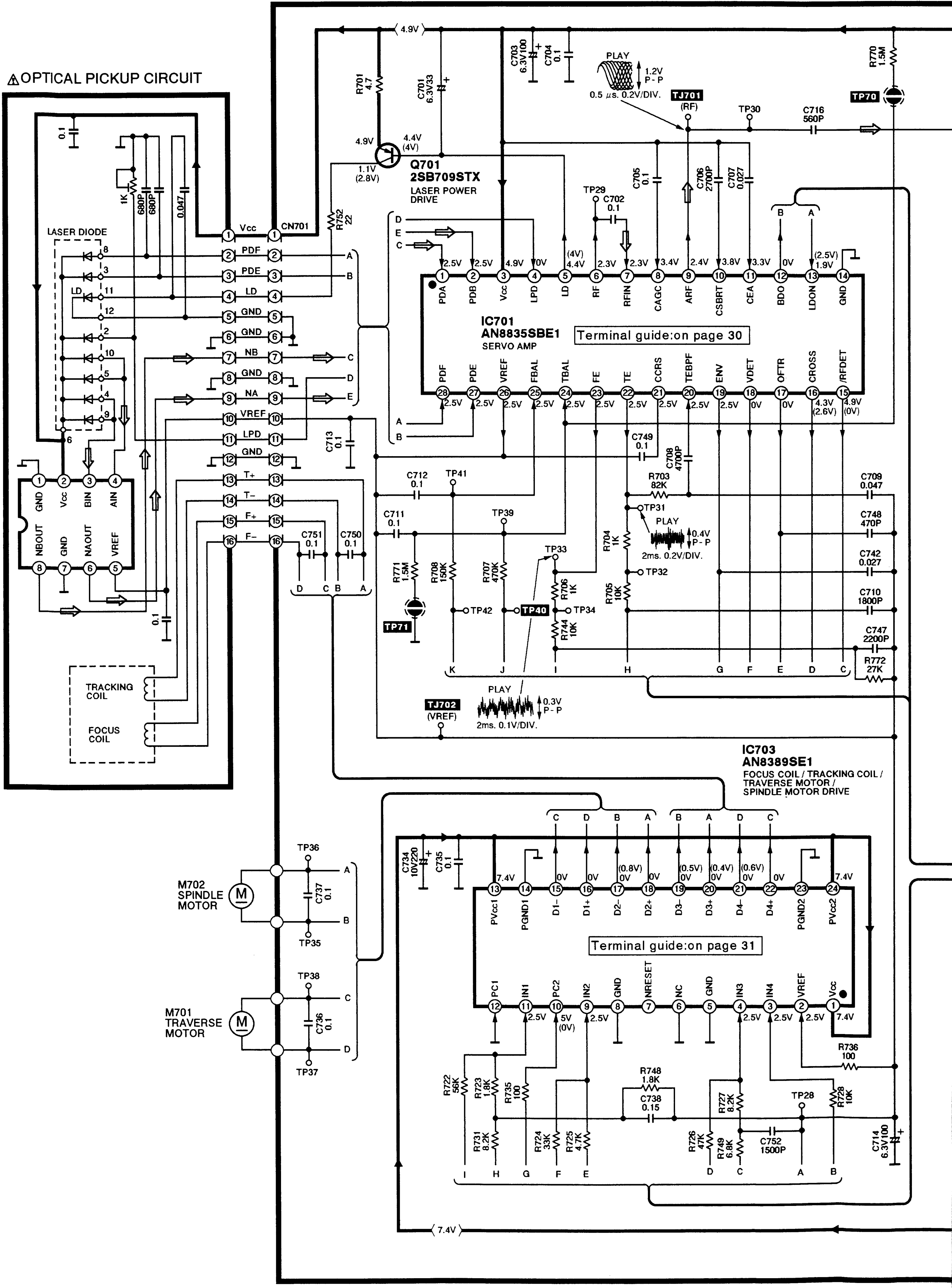
  No mark : CD STOP
  (   ) : CD PLAY [1kHz, L + R, 0 dB]

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

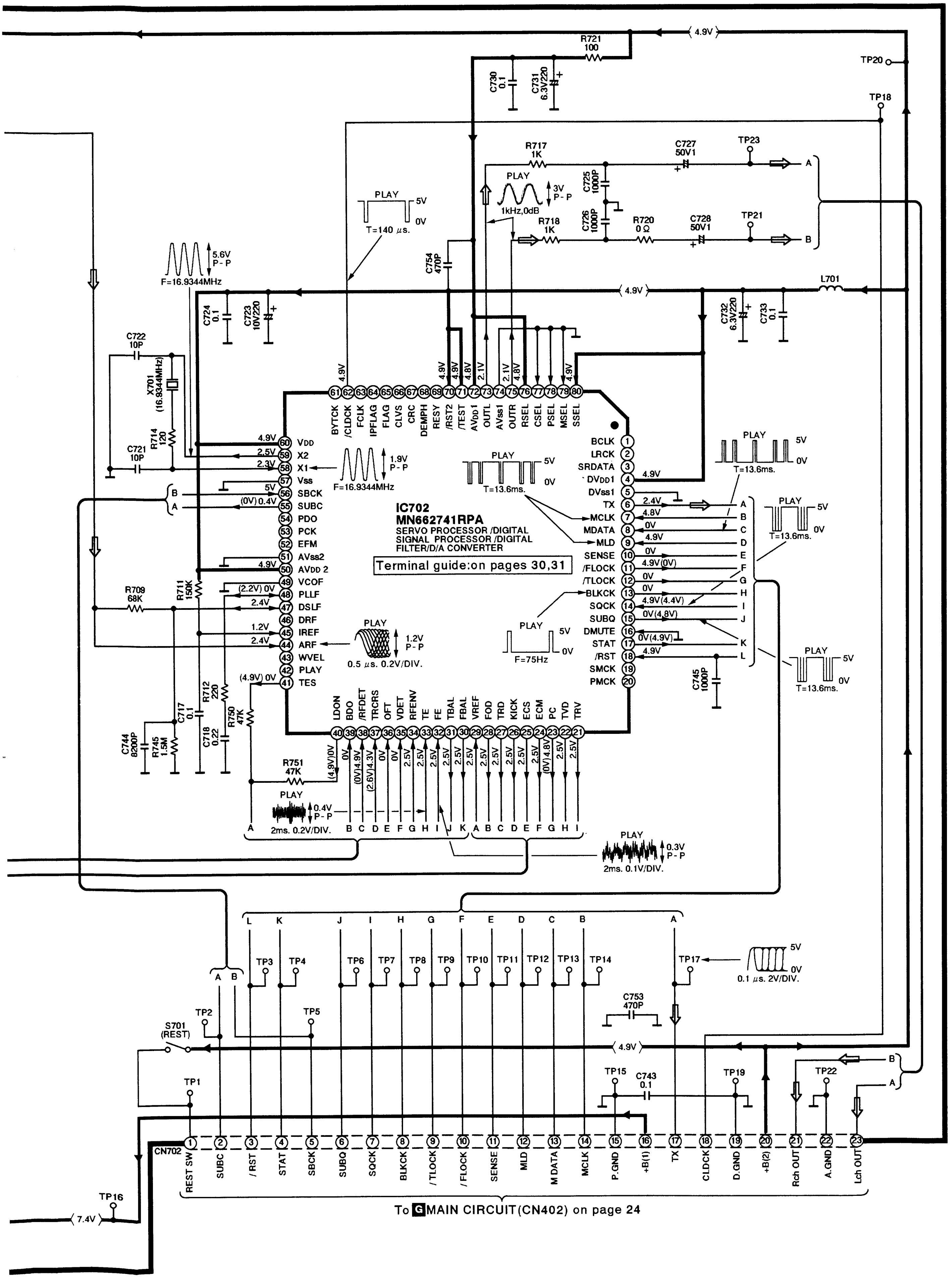
- **Voltage and signal line**
  ━▶━ : Positive voltage line
  ⇨ : CD signal line

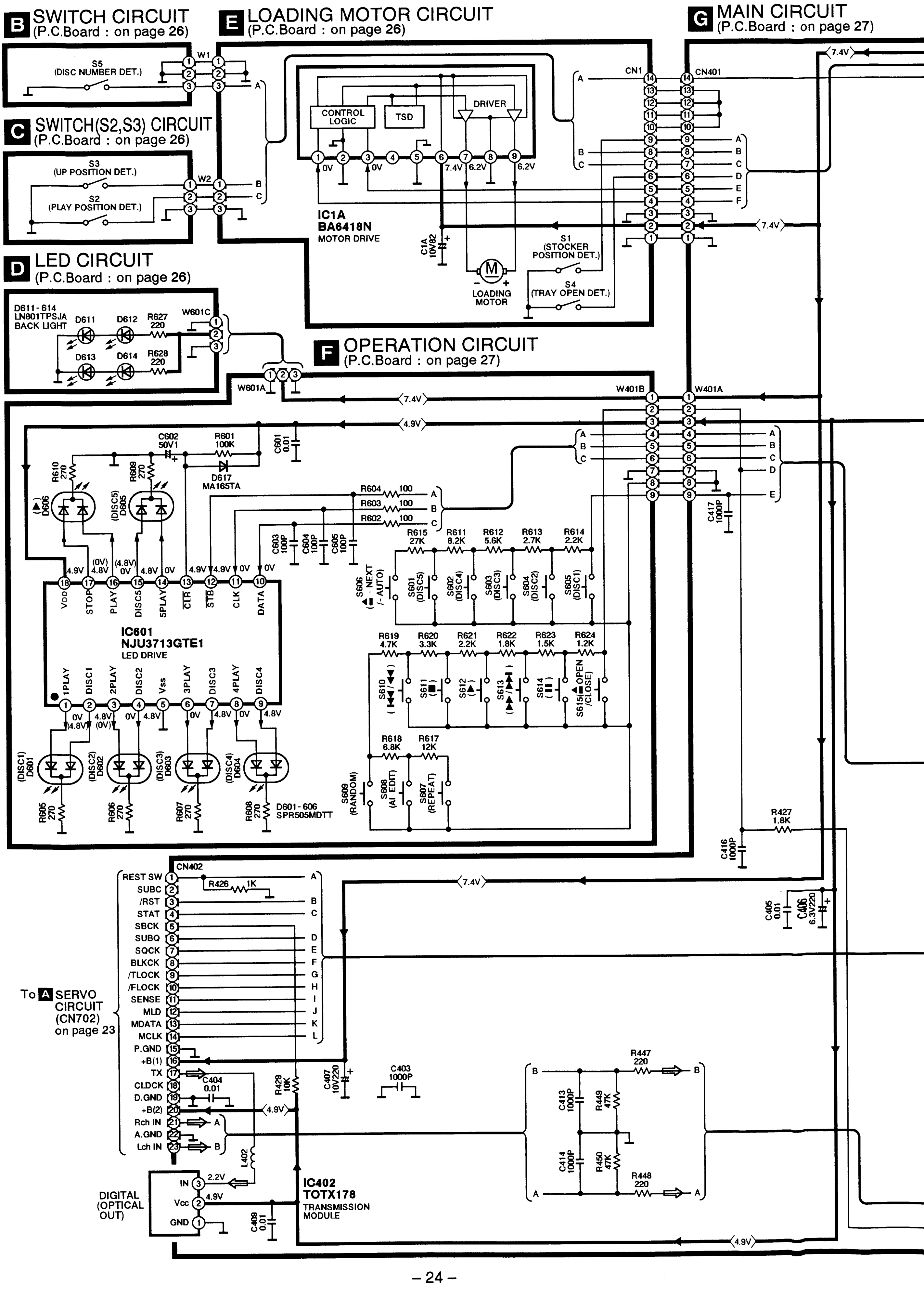
A SERVO CIRCUIT (P.C.Board:on page 26)


⚠OPTICAL PICKUP CIRCUIT
LASER DIODE
LD
1K
680P
680P
0.047
0.1
GND
Vcc
BIN
AIN
NBOUT
GND
NAOUT
VREF
TRACKING COIL
FOCUS COIL
CN701
Vcc
PDF
PDE
LD
GND
GND
NB
GND
NA
VREF
LPD
GND
T+
T−
F+
F−
R701 4.7
C701 6.3V33
4.9V
4.4V (4V)
1.1V (2.8V)
Q701 2SB709STX
LASER POWER DRIVE
R752 22
C703 6.3V100
C704 0.1
PLAY
1.2V P-P
0.5 μs. 0.2V/DIV.
TJ701 (RF)
TP30
C716 560P
R770 1.5M
TP70
TP29
C702 0.1
C705 0.1
C706 2700P
C707 0.027
IC701 AN8835SBE1
SERVO AMP
Terminal guide:on page 30
PDA
PDB
Vcc
LPD
LD
RF
RFIN
CAGC
ARF
CSBRT
CEA
BDO
LDON
GND
PDF
PDE
VREF
FBAL
TBAL
FE
TE
CCRS
TEBPF
ENV
VDET
OFTR
CROSS
/RFDET
C713 0.1
C712 0.1
TP41
C711 0.1
TP39
C749 0.1
C708 4700P
R703 82K
C709 0.047
TP31
PLAY
0.4V P-P
2ms. 0.2V/DIV.
C748 470P
C742 0.027
C710 1800P
C747 2200P
R772 27K
C751 0.1
C750 0.1
R771 1.5M
R708 150K
R707 470K
TP33
R706 1K
R704 1K
R705 10K
TP32
TP71
TP42
TP40
TP34
R744 10K
TJ702 (VREF)
PLAY
0.3V P-P
2ms. 0.1V/DIV.
IC703 AN8389SE1
FOCUS COIL / TRACKING COIL / TRAVERSE MOTOR / SPINDLE MOTOR DRIVE
C734 10V220
C735 0.1
PVcc1
PGND1
D1−
D1+
D2−
D2+
D3−
D3+
D4−
D4+
PGND2
PVcc2
Terminal guide:on page 31
PC1
IN1
PC2
IN2
GND
NRESET
NC
GND
IN3
IN4
VREF
Vcc
7.4V
5V (0V)
TP36
M702 SPINDLE MOTOR
C737 0.1
TP35
TP38
M701 TRAVERSE MOTOR
C736 0.1
TP37
R736 100
R722 56K
R723 1.8K
R735 100
R748 1.8K
C738 0.15
R727 8.2K
TP28
R728 10K
R731 8.2K
R724 33K
R725 4.7K
R726 47K
R749 6.8K
C752 1500P
C714 6.3V100
7.4V

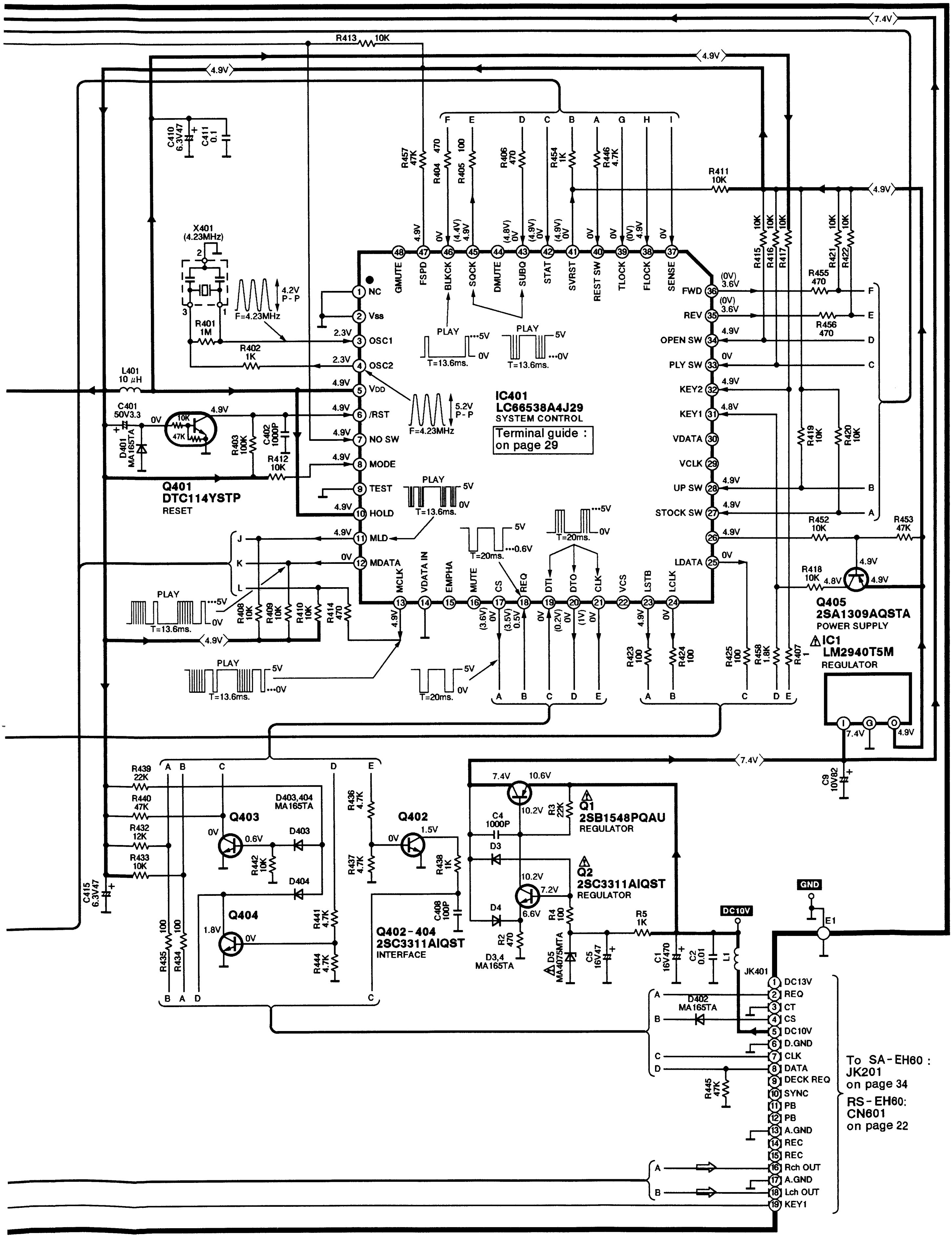
: Positive voltage Line

: CD signal Line


IC702
MN662741RPA
SERVO PROCESSOR /DIGITAL SIGNAL PROCESSOR /DIGITAL FILTER/D/A CONVERTER
Terminal guide:on pages 30,31
1 BCLK
2 LRCK
3 SRDATA
4 DVDD1
5 DVss1
6 TX
7 MCLK
8 MDATA
9 MLD
10 SENSE
11 /FLOCK
12 /TLOCK
13 BLKCK
14 SQCK
15 SUBQ
16 DMUTE
17 STAT
18 /RST
19 SMCK
20 PMCK
21 TRV
22 TVD
23 PC
24 ECM
25 ECS
26 KICK
27 TRD
28 FOD
29 VREF
30 FBAL
31 TBAL
32 FE
33 TE
34 RFENV
35 VDET
36 OFT
37 TRCRS
38 /RFDET
39 BDO
40 LDON
41 TES
42 PLAY
43 WVEL
44 ARF
45 IREF
46 DRF
47 DSLF
48 PLLF
49 VCOF
50 AVDD 2
51 AVss2
52 EFM
53 PCK
54 PDO
55 SUBC
56 SBCK
57 Vss
58 X1
59 X2
60 VDD
61 BYTCK
62 /CLDCK
63 FCLK
64 IPFLAG
65 FLAG
66 CLVS
67 CRC
68 DEMPH
69 RESY
70 /RST2
71 /TEST
72 AVDD1
73 OUTL
74 AVss1
75 OUTR
76 RSEL
77 CSEL
78 PSEL
79 MSEL
80 SSEL
R721 100
C730 0.1
C731 6.3V220
4.9V
TP20
TP18
R717 1K
C727 50V1
TP23
C725 1000P
C726 1000P
PLAY 3V P-P 1kHz,0dB
R718 1K
R720 0Ω
C728 50V1
TP21
PLAY 5V 0V T=140 µs.
C754 470P
5.6V P-P F=16.9344MHz
C724 0.1
C723 10V220
L701
C732 6.3V220
C733 0.1
C722 10P
X701 (16.9344MHz)
C721 10P
R714 120
1.9V P-P F=16.9344MHz
PLAY 5V 0V T=13.6ms.
R709 68K
R711 150K
PLAY 1.2V P-P 0.5 µs. 0.2V/DIV.
PLAY 5V 0V F=75Hz
C745 1000P
C744 8200P
R745 1.5M
C717 0.1
R712 220
C718 0.22
R750 47K
R751 47K
PLAY 0.4V P-P 2ms. 0.2V/DIV.
PLAY 0.3V P-P 2ms. 0.1V/DIV.
5V 0V 0.1 µs. 2V/DIV.
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP14
TP15
TP16
TP17
TP19
TP22
S701 (REST)
C753 470P
C743 0.1
7.4V
CN702
1 REST SW
2 SUBC
3 /RST
4 STAT
5 SBCK
6 SUBQ
7 SQCK
8 BLKCK
9 /TLOCK
10 /FLOCK
11 SENSE
12 MLD
13 M DATA
14 MCLK
15 P.GND
16 +B(1)
17 TX
18 CLDCK
19 D.GND
20 +B(2)
21 Rch OUT
22 A.GND
23 Lch OUT
To G MAIN CIRCUIT(CN402) on page 24


B SWITCH CIRCUIT
(P.C.Board : on page 26)
S5
(DISC NUMBER DET.)
W1
C SWITCH(S2,S3) CIRCUIT
(P.C.Board : on page 26)
S3
(UP POSITION DET.)
S2
(PLAY POSITION DET.)
W2
D LED CIRCUIT
(P.C.Board : on page 26)
D611-614
LN801TPSJA
BACK LIGHT
D611
D612
D613
D614
R627 220
R628 220
W601C
E LOADING MOTOR CIRCUIT
(P.C.Board : on page 26)
CONTROL LOGIC
TSD
DRIVER
0V
0V
7.4V
6.2V
6.2V
IC1A
BA6418N
MOTOR DRIVE
C1A 10V82
M
LOADING MOTOR
S1
(STOCKER POSITION DET.)
S4
(TRAY OPEN DET.)
CN1
G MAIN CIRCUIT
(P.C.Board : on page 27)
CN401
7.4V
F OPERATION CIRCUIT
(P.C.Board : on page 27)
W601A
W401B
W401A
7.4V
4.9V
C602 50V1
R601 100K
C601 0.01
D617 MA165TA
R610 270
R609 270
D606
(DISC5) D605
R604 100
R603 100
R602 100
C603 100P
C604 100P
C605 100P
R615 27K
R611 8.2K
R612 5.6K
R613 2.7K
R614 2.2K
S606 (⏏-NEXT /-AUTO)
S601 (DISC5)
S602 (DISC4)
S603 (DISC3)
S604 (DISC2)
S605 (DISC1)
C417 1000P
VDD
STOP
PLAY
DISC5
5PLAY
CLR
STB
CLK
DATA
4.9V
4.8V
(0V)
(4.8V)
0V
IC601
NJU3713GTE1
LED DRIVE
1PLAY
DISC1
2PLAY
DISC2
Vss
3PLAY
DISC3
4PLAY
DISC4
R619 4.7K
R620 3.3K
R621 2.2K
R622 1.8K
R623 1.5K
R624 1.2K
S610
S611 (■)
S612 (▲)
S613
S614 (II)
S615 (⏏OPEN /CLOSE)
R618 6.8K
R617 12K
S609 (RANDOM)
S608 (AI EDIT)
S607 (REPEAT)
(DISC1) D601
(DISC2) D602
(DISC3) D603
(DISC4) D604
R605 270
R606 270
R607 270
R608 270
D601-606
SPR505MDTT
R427 1.8K
C416 1000P
CN402
REST SW
SUBC
/RST
STAT
SBCK
SUBQ
SQCK
BLKCK
/TLOCK
/FLOCK
SENSE
MLD
MDATA
MCLK
P.GND
+B(1)
TX
CLDCK
D.GND
+B(2)
Rch IN
A.GND
Lch IN
R426 1K
To A SERVO CIRCUIT (CN702) on page 23
C404 0.01
R429 10K
C407 10V220
C403 1000P
C405 0.01
C406 6.3V220
L402
4.9V
2.2V
IN
Vcc
GND
DIGITAL (OPTICAL OUT)
IC402
TOTX178
TRANSMISSION MODULE
C409 0.01
R447 220
R448 220
C413 1000P
C414 1000P
R449 47K
R450 47K

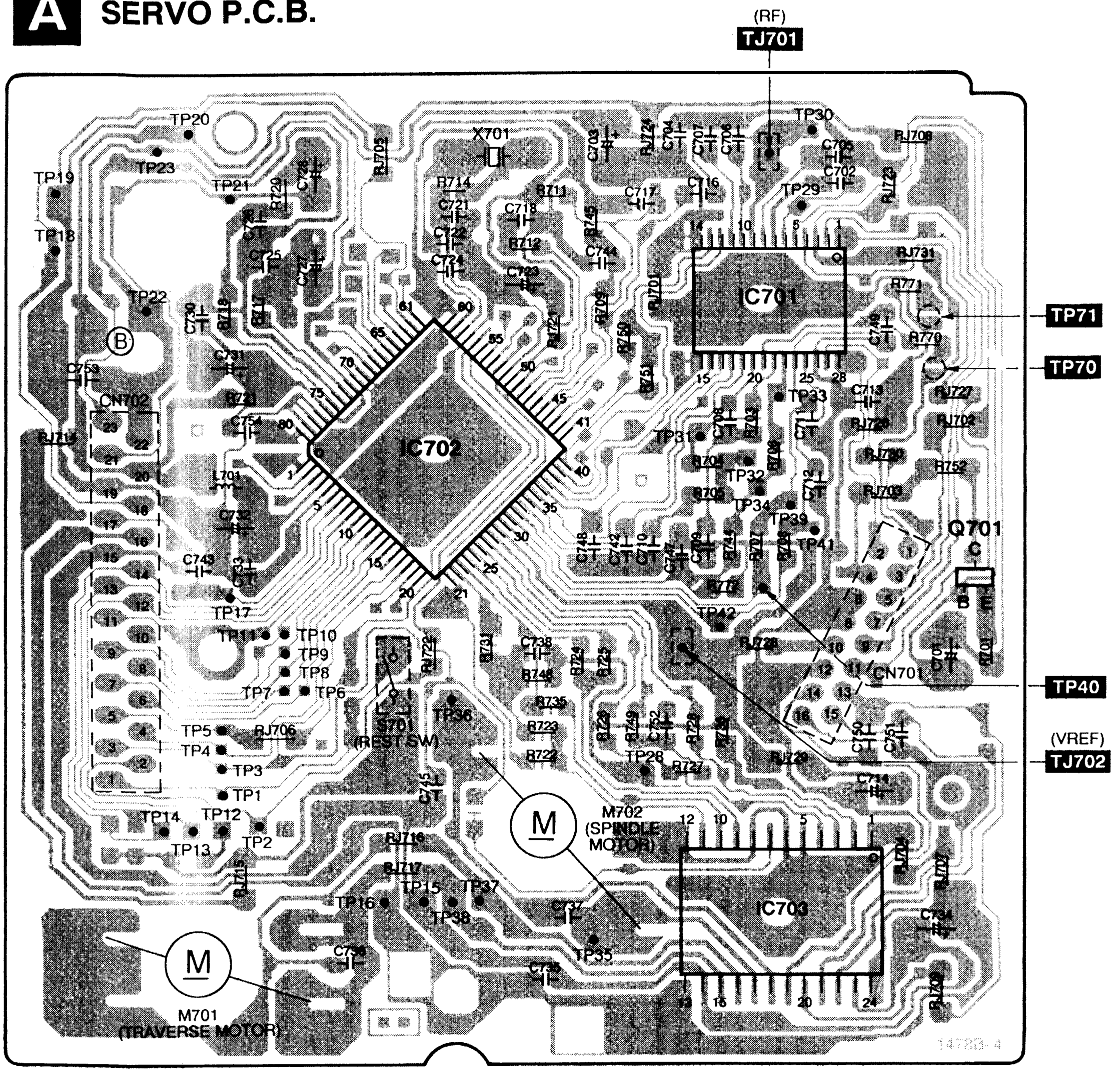
→ : Positive voltage Line ⇨ : CD signal Line


IC401
LC66538A4J29
SYSTEM CONTROL
Terminal guide : on page 29
1 NC
2 Vss
3 OSC1
4 OSC2
5 VDD
6 /RST
7 NO SW
8 MODE
9 TEST
10 HOLD
11 MLD
12 MDATA
13 MCLK
14 VDATA IN
15 EMPHA
16 MUTE
17 CS
18 REQ
19 DTI
20 DTO
21 CLK
22 VCS
23 LSTB
24 LCLK
25 LDATA
26
27 STOCK SW
28 UP SW
29 VCLK
30 VDATA
31 KEY1
32 KEY2
33 PLY SW
34 OPEN SW
35 REV
36 FWD
37 SENSE
38 FLOCK
39 TLOCK
40 REST SW
41 SVRST
42 STAT
43 SUBQ
44 DMUTE
45 SQCK
46 BLKCK
47 FSPD
48 GMUTE
X401 (4.23MHz)
4.2V P-P
F=4.23MHz
5.2V P-P
F=4.23MHz
R401 1M
R402 1K
L401 10 μH
C401 50V3.3
D401 MA165TA
Q401
DTC114YSTP
RESET
10K 47K
R403 100K
C402 1000P
R412 10K
R413 10K
R457 47K
R404 470
R405 100
R406 470
R454 1K
R446 4.7K
R411 10K
R415 10K
R416 10K
R417 10K
R421 10K
R422 10K
R455 470
R456 470
R419 10K
R420 10K
R452 10K
R453 47K
R418 10K
Q405
2SA1309AQSTA
POWER SUPPLY
⚠IC1
LM2940T5M
REGULATOR
I G O
C9 10V82
C410 6.3V47
C411 0.1
R408 10K
R409 10K
R410 10K
R414 470
R423 100
R424 100
R425 100
R458 1.8K
R407 1
PLAY
T=13.6ms.
T=20ms.
5V
0V
0.6V
(4.9V)
(7.4V)
4.9V
3.6V
(0V)
2.3V
4.8V
R439 22K
R440 47K
R432 12K
R433 10K
C415 6.3V47
Q403
Q404
D403,404 MA165TA
D403
D404
R442 10K
R435 100
R434 100
R441 4.7K
R444 4.7K
R436 4.7K
R437 4.7K
Q402
R438 1K
C408 100P
Q402-404
2SC3311AIQST
INTERFACE
7.4V 10.6V
⚠Q1
2SB1548PQAU
REGULATOR
R3 22K
C4 1000P
D3
D4
⚠Q2
2SC3311AIQST
REGULATOR
10.2V
7.2V
6.6V
R4 100
R2 470
D3,4 MA165TA
⚠D5 MA4075MTA
C5 16V47
R5 1K
C1 16V470
C2 0.01
L1
DC10V
GND
E1
JK401
D402 MA165TA
R445 47K
1 DC13V
2 REQ
3 CT
4 CS
5 DC10V
6 D.GND
7 CLK
8 DATA
9 DECK REQ
10 SYNC
11 PB
12 PB
13 A.GND
14 REC
15 REC
16 Rch OUT
17 A.GND
18 Lch OUT
19 KEY1
To SA-EH60 : JK201 on page 34
RS-EH60: CN601 on page 22

■ Printed Circuit Board Diagram

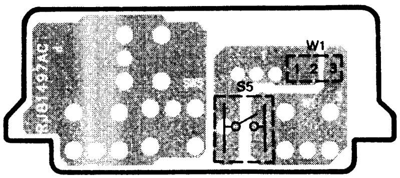
- This circuit board diagram may be modified at any time with the development of new technology.

A SERVO P.C.B.


(RF)
TJ701
TP20
TP23
TP19
TP18
TP21
TP22
X701
IC701
IC702
IC703
TP30
TP29
TP71
TP70
TP33
TP31
TP32
TP34
TP39
TP41
Q701
TP42
CN701
TP40
(VREF)
TJ702
CN702
L701
TP17
TP11
TP10
TP9
TP8
TP7
TP6
TP5
TP4
TP3
TP1
TP14
TP12
TP13
TP2
S701
(REST SW)
TP36
M702
(SPINDLE MOTOR)
TP28
TP16
TP15
TP37
TP38
TP35
M
M701
(TRAVERSE MOTOR)

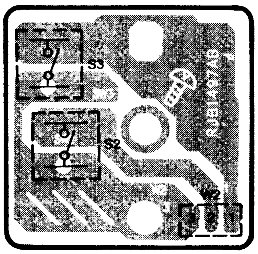
(REP2144B–N)

B SWITCH P.C.B.



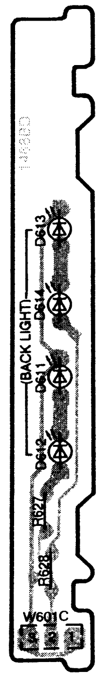
(REP2182A–N)

C SWITCH (S2,S3) P.C.B.



(REP2182A–N)

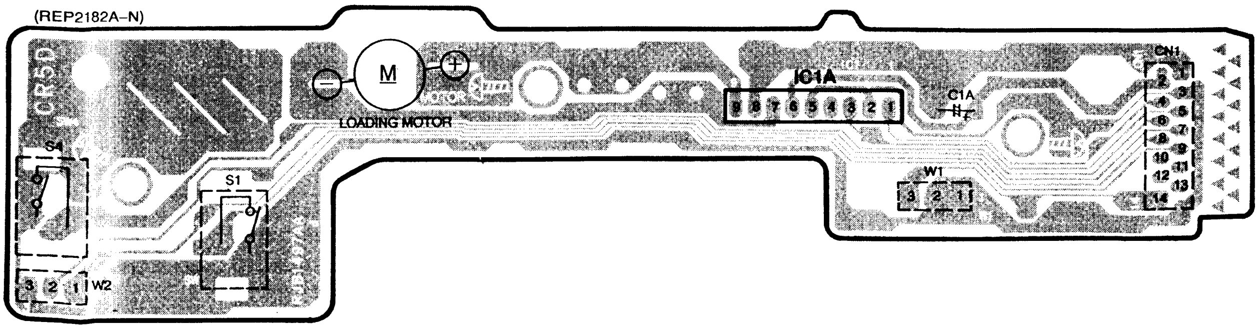
D LED P.C.B.


D613
D614
D611
D612
(BACK LIGHT)
R627
R628
W601C

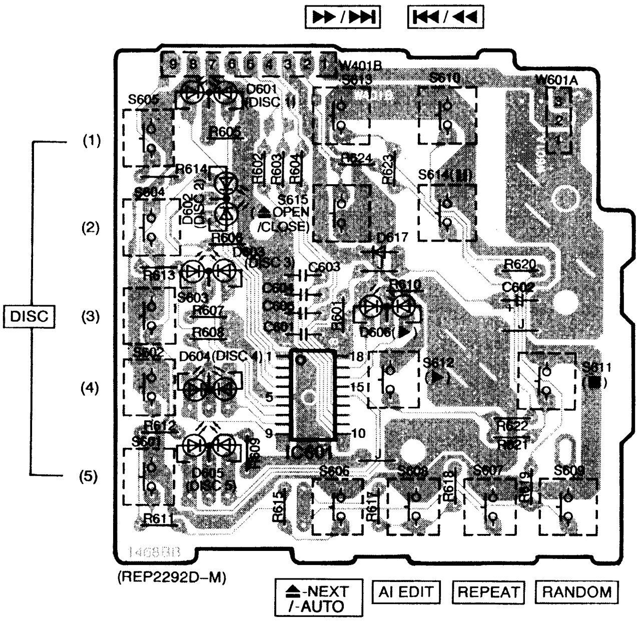
(REP2292D-M)

E LOADING MOTOR P.C.B.

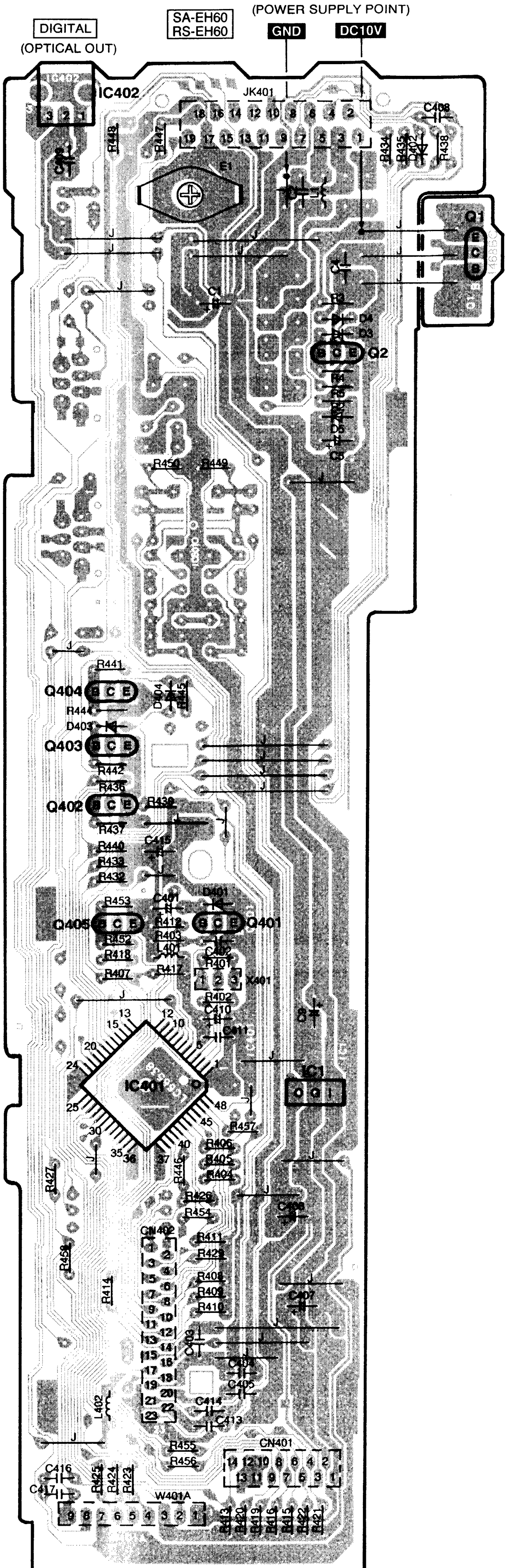
(REP2182A–N)


M
LOADING MOTOR
IC1A
C1A
CN1
W1
S4
S1
W2

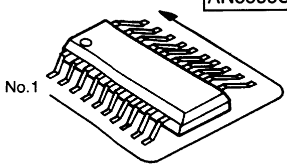
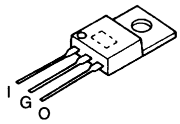
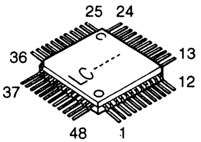
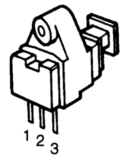
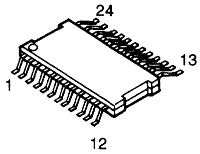
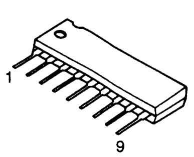
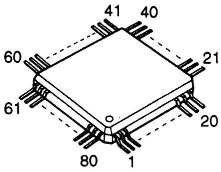
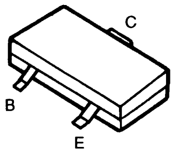
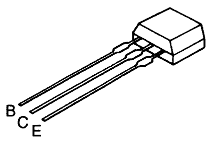
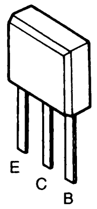
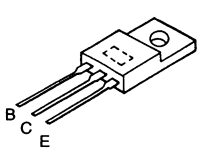
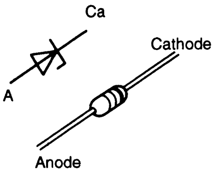
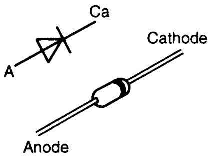
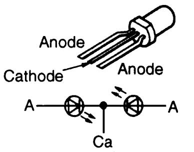
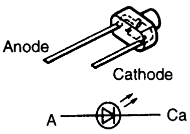
F OPERATION P.C.B.


▶▶/▶▶|
|◀◀/◀◀
W401B
S613
S610
W601A
S605
D601 (DISC 1)
R605
R614
D602 (DISC 2)
R602
R603
R604
R624
R623
S614 (■)
S615 (▲OPEN/CLOSE)
S604
R606
D603 (DISC 3)
D617
R620
C603
R613
S603
C604
C605
C601
R601
R610
D606 (▶)
C602
R607
R608
S602
D604 (DISC 4)
IC601
S612 (▶)
S611 (■)
R612
R622
R621
S601
D605 (DISC 5)
R609
S606
S608
S607
S609
R611
R615
R617
R618
R619
DISC
(1)
(2)
(3)
(4)
(5)
(REP2292D–M)
▲-NEXT /-AUTO
AI EDIT
REPEAT
RANDOM

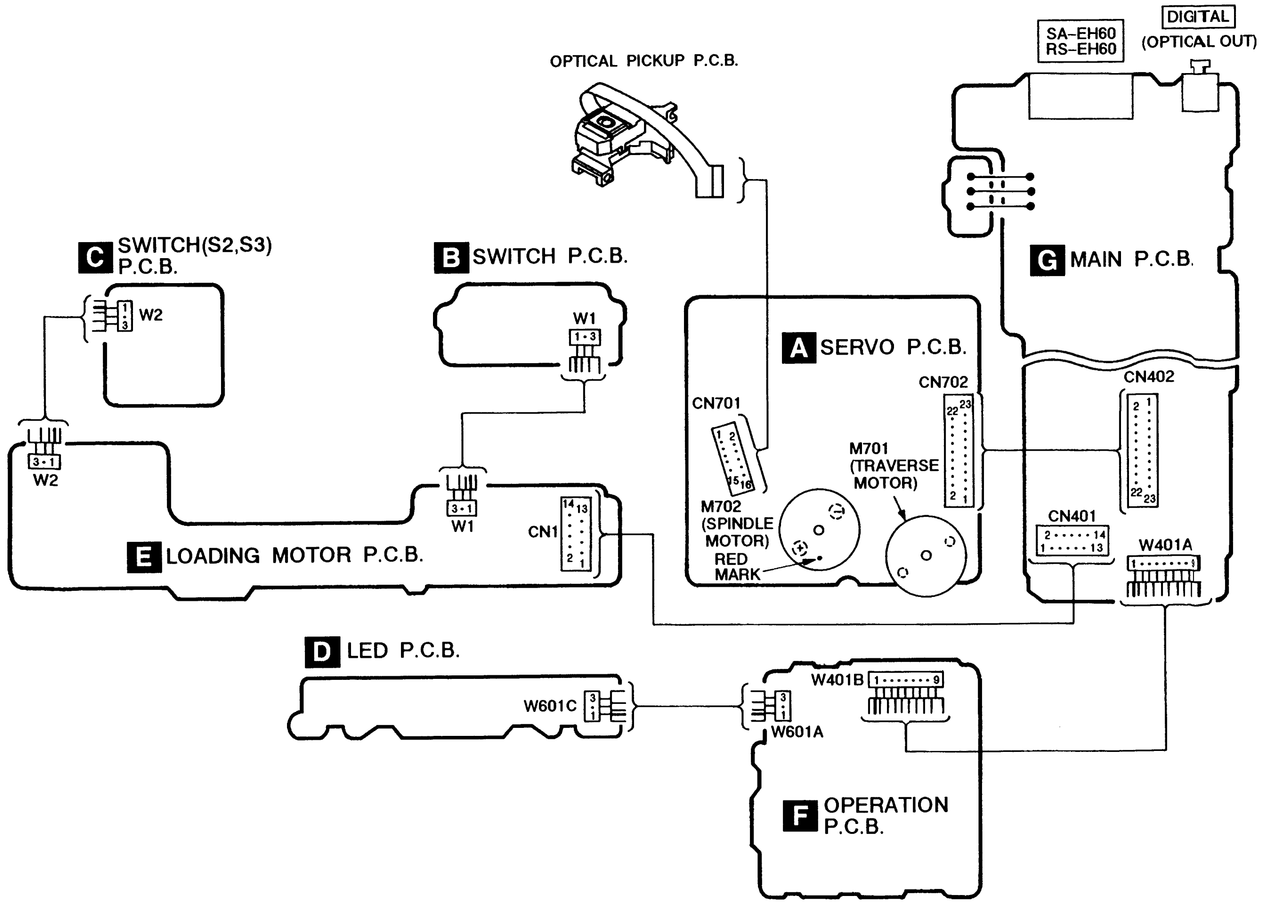
G MAIN P.C.B


DIGITAL
(OPTICAL OUT)
SA-EH60
RS-EH60
(POWER SUPPLY POINT)
GND
DC10V
IC402
JK401
C408
R448
R447
R434
R435
D402
R438
E1
Q1
E
C
B
C1
R3
D4
D3
Q2
R4
R5
D5
C5
R450
R449
R441
Q404
D404
R445
R444
D403
Q403
R442
R436
Q402
R439
R437
R440
C415
R433
R432
R453
C401
D401
Q405
R412
Q401
R452
R403
R418
L401
C402
R401
R407
R417
X401
R402
C410
C411
IC401
C6
IC1
R457
R406
R405
R404
R446
R427
R426
R454
C406
CN402
R411
R429
R458
R414
R408
R409
R410
C407
C403
C404
C405
C414
C413
L402
CN401
R455
R456
C416
C417
R425
R424
R423
W401A
R443
R420
R419
R416
R415
R422
R421
(REP2292D–M)

■ Type Illustration of IC's, Transistors and Diodes

NJU3713GTE1 18PIN AN8835SBE1 28PIN 	LM2940T5M 	LC66538A4J29  25 24 36 13 37 12 48 1	TOTX178 	AN8389SE1 
BA6418N 	MN662741RPA  41 40 60 21 61 20 80 1	2SB709STX 	DTC114YSTP 	2SA1309AQSTA 2SC3311AIQST 
2SB1548PQAU 	MA4075MTA  Ca Cathode A Anode	MA165TA  Ca Cathode A Anode	SPR505MDTT  Anode Cathode Anode A A Ca	LNJ801TPSJA  Anode Cathode A Ca

■ Wiring Connection Diagram


SA-EH60
RS-EH60
DIGITAL
(OPTICAL OUT)
OPTICAL PICKUP P.C.B.
C SWITCH(S2,S3) P.C.B.
W2
1
3
B SWITCH P.C.B.
W1
1·3
G MAIN P.C.B.
A SERVO P.C.B.
CN702
22 23
2 1
CN701
1 2
15 16
CN402
2 1
22 23
M701 (TRAVERSE MOTOR)
M702 (SPINDLE MOTOR)
RED MARK
CN401
2······14
1······13
W401A
W2
3·1
W1
3·1
CN1
14 13
2 1
E LOADING MOTOR P.C.B.
D LED P.C.B.
W601C
W401B
1·······9
W601A
F OPERATION P.C.B.

■ Terminal Function of IC's

• IC401 (LC66538A4J29): System control

Pin No.	Terminal Name	I/O	Function
1	NC	—	No used, connected to GND
2	VSS	—	GND terminal
3	OSC1	I	Crystal oscillating circuit input (f = 4.23 MHz)
4	OSC2	O	Crystal oscillating circuit output (f = 4.23 MHz)
5	VDD	I	Power supply (+5 V)
6	/RST	I	Reset signal input ("L": reset)
7	NO SW	I	Disc tray number detection signal input
8	MODE	I	Test mode signal input
9	TEST	—	Test terminal
10	HOLD	I	No used, connected to power supply
11	MLD	O	Command load signal output
12	MDATA	O	Command data signal output
13	MCLK	O	Command clock signal output
14	VDATA IN	—	No used, connected to GND
15	EMPHA	—	No used, open
16	MUTE	—	No used, open
17	CS	O	Communication request signal output to SA-EH60
18	REQ	I	Communication request signal input from SA-EH60
19	DTI	I	Communication data signal input from SA-EH60
20	DTO	O	Communication data signal output to SA-EH60
21	CLK	O	Communication clock signal output to SA-EH60
22	VCS	—	No used, open
23	LSTB	O	LED drive signal output
24	LCLK	O	LED drive command clock signal output
25	LDATA	O	LED drive command data signal output
26	—	—	No used, connected to power supply
27	STOCK SW	I	Stocker position detection signal input
28	UP SW	I	Disc tray up position detection signal input
29	VCLK	—	No used, open
30	VDATA	—	No used, open
31	KEY1	I	Key switch detection signal input
32	KEY2	I	Key switch detection signal input
33	PLY SW	I	Disc tray play position detection signal input
34	OPEN SW	I	Disc tray open position detection signal input
35	REV	O	Loading motor drive (reverse) signal output
36	FWD	O	Loading motor drive (forward) signal output
37	SENSE	I	Sense signal input
38	FLOCK	I	Focus servo feeding signal input ("L": Feed)
39	TLOCK	I	Tracking servo feeding signal input ("L": Feed)
40	REST SW	I	Rest position detection signal input
41	SVRST	O	Reset signal output to IC702
42	STAT	I	Status signal input
43	SUBQ	I	Sub-code Q code input
44	DMUTE	—	No used, open
45	SQCK	O	Sub-code Q resister clock signal output
46	BLKCK	I	Sub-code block clock signal input (fBLKCK = 75 Hz during normal playback)
47	ESPD	—	No used, connected to power supply
48	GMUTE	—	No used, open

• IC701 (AN8835SBE1): Servo Amp.

Pin No.	Terminal Name	I/O	Function
1	PDA	I	Focus (A-ch) signal input terminal
2	PDB	I	Focus (B-ch) signal input terminal
3	VCC	I	Power supply terminal
4	LPD	I	Laser PD signal input
5	LD	O	Laser power auto control signal output
6	RF	O	RF amp. terminal
7	RF IN	I	AGC input terminal
8	CAGC	I	AGC detection capacitor input
9	ARF	O	RF signal output
10	CSBRT	I	OFTR capacitor connection terminal
11	CEA	I	HPF-AMP capacitor connection terminal
12	BDO	O	Dropout detection control signal output
13	LDON	I	LD APC ON/OFF ("H": ON, "L": OFF)
14	GND	—	GND terminal
15	/RFDET	O	RF detection signal output ("L": det.)
16	CROSS	O	Tracking error zero cross output
17	OFTR	O	Off track detection signal output ("H": det.)
18	VDET	O	Vibration detection signal output ("H": det.)
19	ENV	O	Envelope output terminal
20	TEBPF	I	Vibration detection signal input ("H": det.)
21	CCRS	I	CROSS capacitor connection terminal
22	TE	O	Tracking error signal output
23	FE	O	Focus error signal output
24	TBAL	I	Tracking balance adjustment signal input
25	FBAL	I	Focus balance adjustment signal input
26	VREF	O	Reference voltage output
27	PDE	I	Tracking signal (E-ch) input terminal
28	PDF	I	Tracking signal (F-ch) input terminal

• IC702 (MN662741RPA): Servo Processor, Digital Signal Processor, Digital Filter, D/A Converter

Pin No.	Terminal Name	I/O	Function
1	BCLK	O	Bit clock output for serial data
2	LRCK	O	L/R clock signal output
3	SRDATA	O	Serial data output
4	DVDD1	—	Power supply input (for digital circuit)
5	DVss1	—	GND (for digital circuit)
6	TX	O	Digital audio interface signal output
7	MCLK	I	Microprocessor command clock signal input (Latches data at first transition)
8	MDATA	I	Microprocessor command data signal input
9	MLD	I	Microprocessor command load signal input
10	SENSE	O	Sense signal output (OFT, FESL, MAGEND, NAJEND, POSAD, SFG) (Not used, open)
11	/FLOCK	O	Focus servo feeding signal output ("L": Feed)
12	/TLOCK	O	Tracking servo feeding signal output ("L": Feed) (Not used, open)
13	BLKCK	O	Sub-code block clock signal output (fBLKCK = 75 Hz during normal playback)
14	SQCK	I	External clock signal input for sub-code Q resister
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input ("H": Mute)
17	STAT	O	Status signal output (CRC, CUE, CLVS, TTSTVP, FCLV, SQCK)
18	/RST	I	Reset signal input
19	SMCK	—	1/2-divided clock signal of crystal oscillating at MSEL = "H" (fSMCK = 8.4672 MHz) 1/4-divided clock signal of crystal oscillating at MSEL = "L" (fSMCK = 4.2336 MHz) (Not used, open)
20	PMCK	—	1/192-divided clock signal of crystal oscillating (fPMCK = 88.2 kHz) (Not used, open)
21	TRV	O	Traverse forced feed output
22	TVD	O	Traverse drive output
23	PC	O	Spindle motor ON signal output ("L": ON)
24	ECM	O	Spindle motor drive signal output (forced mode output)
25	ECS	O	Spindle motor drive signal output (servo error signal output)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	D/A (drive) output (TVD, ECS, TRD, FOD, FBAL, TBAL) reference voltage input
30	FBAL	O	Focus balance adjustment output
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input
35	VDET	I	Vibration detection signal input ("H": detection)

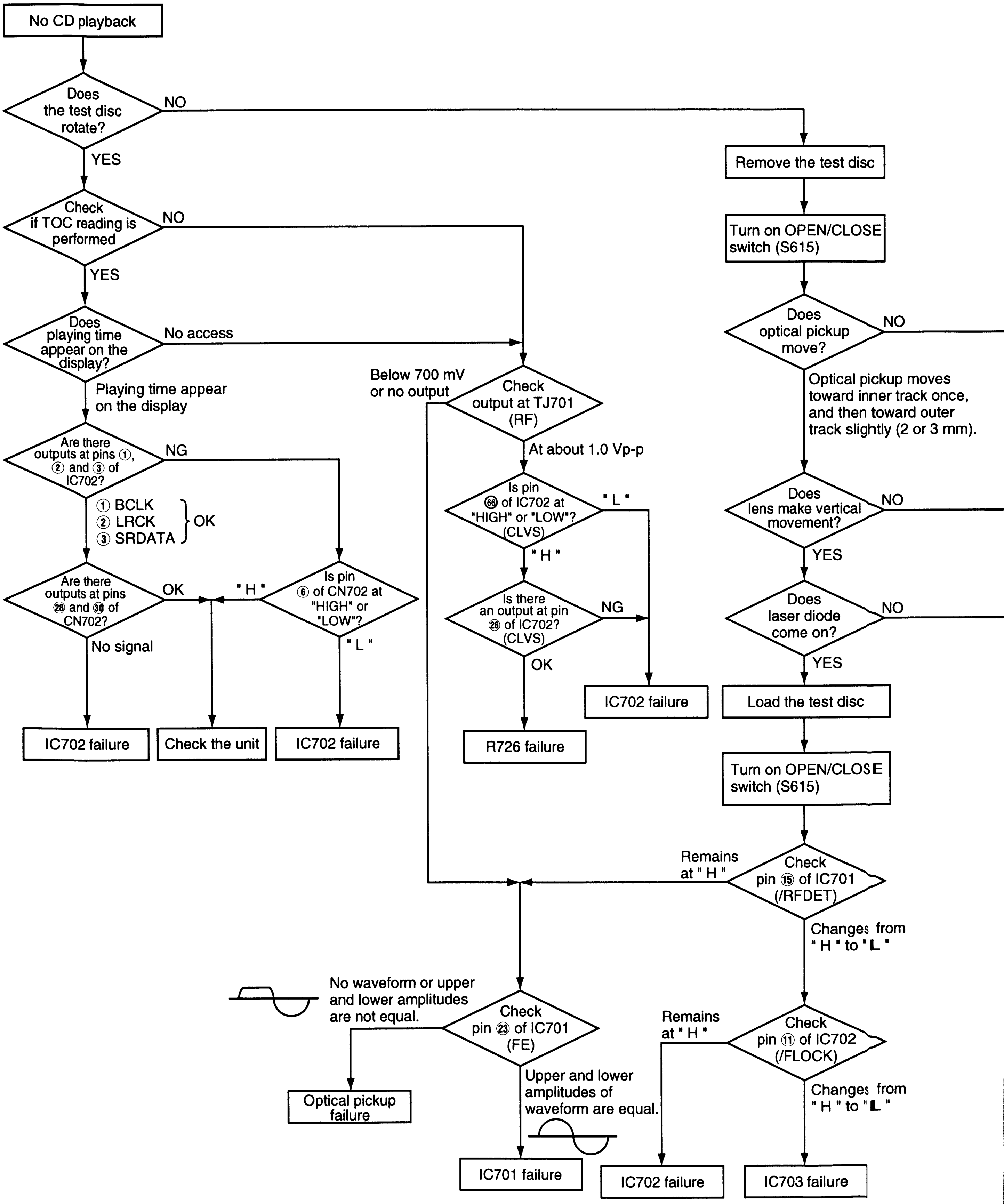
Pin No.	Terminal Name	I/O	Function
36	OFT	I	Off-track signal input ("H": off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal input ("L": detection)
39	BDO	I	Dropout signal input ("H": Dropout)
40	LDON	O	Laser on signal output ("H": ON)
41	TES	O	Tracking error shunt signal output ("H": shunt)
42	PLAY	O	Play signal out ("H": PLAY) (Not used, open)
43	WVEL	O	Double speed status signal output ("H": Double speed) (Not used, open)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	—	DSL bias (Not used, open)
47	DSLF	I/O	DSL loop filter
48	PLLF	I/O	PLL loop filter
49	VCOF	I/O	VCO loop filter
50	AVDD2	—	Power supply input (for analog circuit)
51	AVss2	—	GND (for analog circuit)
52	EFM	—	EFM signal output (Not used, open)
53	PCK	—	PLL extraction clock output (fPCK= 4.321 MHz during normal playback) (Not used, open)
54	PDO	—	Phase comparison signal of EFM and PCK signals (Not used, open)
55	SUBC	O	Sub-code serial data output
56	SBCK	I	Clock input for sub-code serial data
57	Vss	—	GND
58	X1	I	Crystal oscillating circuit input (f = 16.9344 MHz)
59	X2	O	Crystal oscillating circuit output (f = 16.9344 MHz)
60	VDD	—	Power supply input (for oscillating circuit)
61	BYTCK	—	Byte clock output (Not used, open)
62	/CLDCK	O	Sub-code frame clock signal output (fCLDCK = 7.35 kHz during normal playback)
63	FCLK	—	Crystal frame clock signal output (fCLK = 7.35 kHz, double = 14.7 kHz) (Not used, open)
64	IPFLAG	O	Interpolation flag output ("H": Interpolation)
65	FLAG	O	Flag output (Not used, open)
66	CLVS	O	Spindle servo phase synchronizing signal output ("H": CLV, "L": rough servo) (Not used, open)
67	CRC	O	Sub-code CRC checked output ("H": OK, "L": NG) (Not used, open)
68	DEMPH	O	De-emphasis ON signal output ("H": ON) (Not used, open)
69	RESY	—	Frame re-synchronizing signal output (Not used, open)
70	/RST2	I	Reset input through MASH circuit ("L": Reset)
71	/TEST	I	Test input

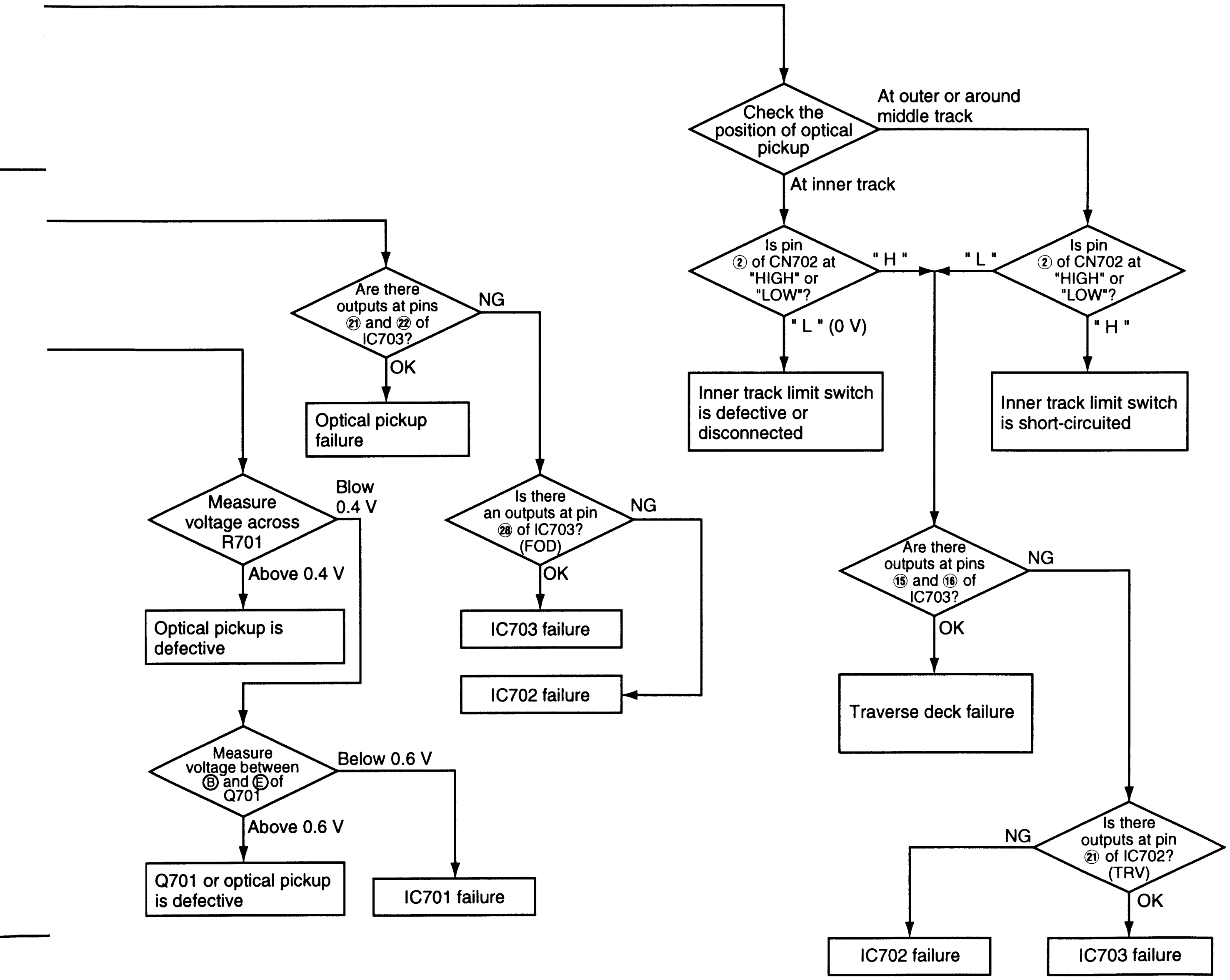
Pin No.	Terminal Name	I/O	Function
72	AVDD1	—	Power supply input (for analog circuit)
73	OUTL	O	Left channel audio signal output
74	AVss1	—	GND
75	OUTR	O	Right channel audio signal output
76	RSEL	I	RF signal polarity assignment input (at "H" level: RSEL = "H") (at "L" level: RSEL = "L")
77	CSEL	I	Crystal oscillating frequency designation input ("L": 16.9344 MHz, "H": 33.8688 MHz)
78	SRDATA	I	Audio serial data signal input
79	LRCK	I	Audio L/R clock signal input
80	BCLK	I	Audio Bit clock signal input

• IC703 (AN8389SE1): Focus/Tracking Coil Driver Traverse/Spindle Motor Driver

Pin No.	Terminal Name	I/O	Function
1	Vcc	—	Power supply
2	VREF	I	VREF input
3	IN4	I	Focus driver (4) input
4	IN3	I	Tracking driver (3) input
5	GND	—	Ground connection
6	NC	—	Ground connection
7	NRESET	—	Reset input (Not used, open)
8	GND	—	Ground connection
9	IN2	I	Spindle motor driver (2) input
10	PC2	I	PC2 (power cut) input
11	IN1	I	Traverse motor driver (1) input
12	PC1	I	PC1 (power cut) input
13	PVcc1	—	Power supply (1) for driver
14	PGND1	—	Ground connection (1) for driver
15	D1-	O	Traverse motor driver (1) reverse-action output
16	D1+	O	Traverse motor driver (1) forward-action output
17	D2-	O	Spindle motor driver (2) reverse-action output
18	D2+	O	Spindle motor driver (2) forward-action output
19	D3-	O	Tracking actuator (3) reverse-action output
20	D3+	O	Tracking actuator (3) forward-action output
21	D4-	O	Focus actuator (4) reverse-action output
22	D4+	O	Focus actuator (4) forward-action output
23	PGND2	—	Ground connection (2) for driver
24	PVcc2	—	Power supply (2) for driver

■Troubleshooting Guide


No CD playback
Does the test disc rotate?
NO
YES
Remove the test disc
Turn on OPEN/CLOSE switch (S615)
Check if TOC reading is performed
NO
YES
Does optical pickup move?
NO
Optical pickup moves toward inner track once, and then toward outer track slightly (2 or 3 mm).
Does playing time appear on the display?
No access
Playing time appear on the display
Below 700 mV or no output
Check output at TJ701 (RF)
At about 1.0 Vp-p
Are there outputs at pins ①, ② and ③ of IC702?
NG
① BCLK
② LRCK
③ SRDATA
OK
Is pin ⑥⑥ of IC702 at "HIGH" or "LOW"? (CLVS)
" L "
" H "
Does lens make vertical movement?
NO
YES
Are there outputs at pins ㉘ and ㉚ of CN702?
OK
" H "
Is pin ⑥ of CN702 at "HIGH" or "LOW"?
" L "
No signal
Is there an output at pin ㉖ of IC702? (CLVS)
NG
OK
Does laser diode come on?
NO
YES
IC702 failure
Load the test disc
IC702 failure
Check the unit
IC702 failure
R726 failure
Turn on OPEN/CLOSE switch (S615)
Remains at " H "
Check pin ⑮ of IC701 (/RFDET)
Changes from " H " to " L "
No waveform or upper and lower amplitudes are not equal.
Check pin ㉓ of IC701 (FE)
Remains at " H "
Check pin ⑪ of IC702 (/FLOCK)
Optical pickup failure
Upper and lower amplitudes of waveform are equal.
Changes from " H " to " L "
IC701 failure
IC702 failure
IC703 failure


Check the position of optical pickup
At outer or around middle track
At inner track
Is pin ② of CN702 at "HIGH" or "LOW"?
" H "
" L " (0 V)
" L "
Is pin ② of CN702 at "HIGH" or "LOW"?
" H "
Inner track limit switch is defective or disconnected
Inner track limit switch is short-circuited
Are there outputs at pins ⑮ and ⑯ of IC703?
NG
OK
Traverse deck failure
Is there outputs at pin ㉑ of IC702? (TRV)
NG
OK
IC702 failure
IC703 failure
Are there outputs at pins ㉑ and ㉒ of IC703?
NG
OK
Optical pickup failure
Is there an outputs at pin ㉘ of IC703? (FOD)
NG
OK
IC703 failure
IC702 failure
Measure voltage across R701
Blow 0.4 V
Above 0.4 V
Optical pickup is defective
Measure voltage between Ⓑ and Ⓔ of Q701
Below 0.6 V
Above 0.6 V
Q701 or optical pickup is defective
IC701 failure

■ Replacement Parts List (Electrical)

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*[M] Indicates in Remarks columns parts that are supplied by MESA.
*Warning: This product uses a laser diode. Refer to caution statements on page 2.
*ACHTUNG: Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.
*The "(SF)" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1⚠	LM2940T5	IC	[M]
IC1A	BA6418N	IC	[M]
IC401	LC66538A4J29	IC	[M]
IC402	TOTX178	IC	[M]
IC601	NJU3713GTE1	IC	[M]
		TRANSISTOR(S)	
Q1⚠	2SB1548PQAU	TRANSISTOR	[M]
Q2⚠	2SC3311AIRTA	TRANSISTOR	[M]
Q401	DTC114YSTP	TRANSISTOR	[M]
Q402-404	2SC3311AIRTA	TRANSISTOR	[M]
Q405	2SA1309A-R	TRANSISTOR	[M]
		DIODE(S)	
D3, 4	MA165	DIODE	[M]
D5⚠	MA4075MTA	DIODE	[M]
D401-404	MA165	DIODE	[M]
D601-606	SPR505MDTT	L. E. D.	[M]
D611-614	LNJ801TPSJA	L. E. D.	[M]
D617	MA165	DIODE	[M]
		COIL(S)	
L1	BL02RN2R65T2	COIL	[M]
L401	RLQA100JT-Y	COIL	[M]
L402	BL02RN2R65T2	COIL	[M]
		OSCILLATOR(S)	
X401	EF0EC4234T3	OSCILLATOR	[M]
		SWITCH(ES)	
S1	RSH1A005	SW	[M]
S2, 3	RSH1A032-U	SW	[M]
S4	RSH1A005	SW	[M]
S5	RSH1A032-U	SW	[M]
S601-615	EVQ21405R	SW	[M]
		CONNECTOR(S)	
CN1	RJS1A6714	CONNECTOR(14P)	[M]
CN401	RJS1A6814	CONNECTOR(14P)	[M]
CN402	RJS1A6823	CONNECTOR(23P)	[M]
		EARTH TERMINAL(S)	
E1	SNE1004-2	EARTH TERMINAL	[M]
		JACK(S)	
JK401	RJT065K19	SYSTEM	[M]
		CD SERVO CIRCUIT	
		INTEGRATED CIRCUIT(S)	
IC701	AN8835SBE1	IC	[M]
IC702	MN662741RPA	IC	[M]
IC703	AN8389SE1	IC	[M]
		TRANSISTOR(S)	
Q701	2SB709S	TRANSISTOR	[M]
		COIL(S)	
L701	RLBN102V-Y	COIL	[M]
		OSCILLATOR(S)	
X701	RSXB16M9J02T	OSCILLATOR	[M]
		SWITCH(ES)	
S701	RSM0006-P	SW	[M]
		CONNECTOR(S)	
CN701	RJU035T016-1	CONNECTOR(16P)	[M]
CN702	RJS1A6723-1Q	CONNECTOR(23P)	[M]

■ Resistors and Capacitors

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R2	ERDS2TJ471	1/4W 470 [M]
R3	ERDS2TJ223	1/4W 22K [M]
R4	ERDS2TJ101	1/4W 100 [M]
R5	ERDS2TJ102	1/4W 1K [M]
R401	ERDS2TJ105T	1/4W 1M [M]
R402	ERDS2TJ102	1/4W 1K [M]
R403	ERDS2TJ104	1/4W 100K [M]
R404	ERDS2TJ471	1/4W 470 [M]
R405	ERDS2TJ101	1/4W 100 [M]
R406	ERDS2TJ471	1/4W 470 [M]
R407	ERDS2TJ1R0	1/4W 1.0 [M]
R408-413	ERDS2TJ103	1/4W 10K [M]
R414	ERDS2TJ471	1/4W 470 [M]
R415-422	ERDS2TJ103	1/4W 10K [M]
R423-425	ERDS2TJ101	1/4W 100 [M]
R426	ERDS2TJ102	1/4W 1K [M]
R427	ERDS2TJ182	1/4W 1.8K [M]
R429	ERDS2TJ103	1/4W 10K [M]
R432	ERDS2TJ123	1/4W 12K [M]
R433	ERDS2TJ103	1/4W 10K [M]
R434, 435	ERDS2TJ101	1/4W 100 [M]
R436, 437	ERDS2TJ472	1/4W 4.7K [M]
R438	ERDS2TJ102	1/4W 1K [M]
R439	ERDS2TJ223	1/4W 22K [M]
R440	ERDS2TJ473	1/4W 47K [M]
R441	ERDS2TJ472	1/4W 4.7K [M]
R442	ERDS2TJ103	1/4W 10K [M]
R444	ERDS2TJ472	1/4W 4.7K [M]
R445	ERDS2TJ473	1/4W 47K [M]
R446	ERDS2TJ472	1/4W 4.7K [M]
R447, 448	ERDS2TJ221	1/4W 220 [M]
R449, 450	ERDS2TJ473	1/4W 47K [M]
R452	ERDS2TJ103	1/4W 10K [M]
R453	ERDS2TJ473	1/4W 47K [M]
R454	ERDS2TJ102	1/4W 1K [M]
R455, 456	ERDS2TJ471	1/4W 470 [M]
R457	ERDS2TJ473	1/4W 47K [M]
R458	ERDS2TJ182	1/4W 1.8K [M]
R601	ERDS2TJ104	1/4W 100K [M]
R602-604	ERDS2TJ101	1/4W 100 [M]
R605-610	ERDS2TJ271	1/4W 270 [M]
R611	ERDS2TJ822	1/4W 8.2K [M]
R612	ERDS2TJ562	1/4W 5.6K [M]
R613	ERDS2TJ272T	1/4W 2.7K [M]
R614	ERDS2TJ222	1/4W 2.2K [M]
R615	ERDS2TJ273	1/4W 27K [M]

Ref. No.	Part No.	Values & Remarks
R617	ERDS2TJ123	1/4W 12K [M]
R618	ERDS2TJ682T	1/4W 6.8K [M]
R619	ERDS2TJ472	1/4W 4.7K [M]
R620	ERDS2TJ332	1/4W 3.3K [M]
R621	ERDS2TJ222	1/4W 2.2K [M]
R622	ERDS2TJ182	1/4W 1.8K [M]
R623	ERDS2TJ152	1/4W 1.5K [M]
R624	ERDS2TJ122	1/4W 1.2K [M]
R627, 628	ERDS2TJ221	1/4W 220 [M]
		CAPACITORS
C1	ECA1CM471BE	16V 470U [M]
C1A	ECA1AKF820E	10V 82U [M]
C2	ECBT1E103ZF	25V 0.01U [M]
C4	ECBT1H102KB5	50V 1000P [M]
C5	RCE1CKA470BG	16V 47U [M]
C9	ECA1AKF820B	10V 82U [M]
C401	RCE1HKA3R3BG	50V 3.3U [M]
C402, 403	ECBT1H102KB5	50V 1000P [M]
C404, 405	ECBT1E103ZF	25V 0.01U [M]
C406	ECEA0JKA221B	6.3V 220U [M]
C407	ECEA1AKA221B	10V 220U [M]
C408	ECBT1H101KB5	50V 100P [M]
C409	ECBT1E103ZF	25V 0.01U [M]
C410	ECEA0JKA470B	6.3V 47U [M]
C411	ECBT1H104ZF5	50V 0.1U [M]
C413, 414	ECBT1H102KB5	50V 1000P [M]
C415	ECEA0JKA470B	6.3V 47U [M]
C416, 417	ECBT1H102KB5	50V 1000P [M]
C601	ECBT1E103ZF	25V 0.01U [M]
C602	ECEA1HKA010B	50V 1U [M]
C603-605	ECBT1H101KB5	50V 100P [M]
		CD SERVO CIRCUIT
		RESISTORS
R701	ERJ6GEYJ4R7V	1/10W 4.7 [M]
R703	ERJ6GEYJ823	1/10W 82K [M]
R704	ERJ6GEYJ102A	1/10W 1K [M]
R705	ERJ6GEYJ103V	1/10W 10K [M]
R706	ERJ6GEYJ102A	1/10W 1K [M]
R707	ERJ6GEYJ474V	1/10W 470K [M]
R708	ERJ6GEYJ154V	1/10W 150K [M]
R709	ERJ6GEYJ683V	1/10W 68K [M]
R711	ERJ6GEYJ154V	1/10W 150K [M]
R712	ERJ6GEYJ221V	1/10W 220 [M]
R714	ERJ6GEYJ121V	1/10W 120 [M]
R717, 718	ERJ6GEYJ102A	1/10W 1K [M]

Ref. No.	Part No.	Values & Remarks
R720	ERJ6GEY0R00A	1/10W 0.00 [M]
R721	ERJ6GEYJ101V	1/10W 100 [M]
R722	ERJ6GEYJ563V	1/10W 56K [M]
R723	ERJ6GEYJ182V	1/10W 1.8K [M]
R724	ERJ6GEYJ333V	1/10W 33K [M]
R725	ERJ6GEYJ472V	1/10W 4.7K [M]
R726	ERJ6GEYJ473V	1/10W 47K [M]
R727	ERJ6GEYJ822V	1/10W 8.2K [M]
R728	ERJ6GEYJ103V	1/10W 10K [M]
R731	ERJ6GEYJ822V	1/10W 8.2K [M]
R735, 736	ERJ6GEYJ101V	1/10W 100 [M]
R744	ERJ6GEYJ103V	1/10W 10K [M]
R745	ERJ6GEYJ155V	1/10W 1.5M [M]
R748	ERJ6GEYJ182V	1/10W 1.8K [M]
R749	ERJ6GEYJ682V	1/10W 6.8K [M]
R750, 751	ERJ6GEYJ473V	1/10W 47K [M]
R752	ERJ8GEYJ220V	1/8W 22 [M]
R770, 771	ERJ6GEYJ155V	1/10W 1.5M [M]
R772	ERJ6GEYJ273V	1/10W 27K [M]
		CHIP JUMPER(S)
RJ701-709	ERJ8GEY0R00A	CHIP JUMPER [M]
RJ714-717	ERJ8GEY0R00A	CHIP JUMPER [M]
RJ721-724	ERJ6GEY0R00A	CHIP JUMPER [M]
RJ726-731	ERJ6GEY0R00A	CHIP JUMPER [M]
		TEST JUMPER(S)
TJ701, 702	EYF8CU	TEST JUMPER [M]
		CAPACITOR
C701	ECEA0JKA330I	6.3V 33U [M]
C702	ECUZNE104MBN	25V 0.1U [M]
C703	ECEA0JKA101I	6.3V 100U [M]
C704, 705	ECUZNE104MBN	25V 0.1U [M]
C706	ECUV1H272KBN	50V 2700P [M]
C707	ECUV1E273KBN	25V 0.027U [M]
C708	ECUE1H472KBN	50V 4700P [M]
C709	ECUE1C473KBN	16V 0.047U [M]
C710	ECUV1H182KBN	50V 1800P [M]
C711, 712	ECUWNE104ZFN	25V 0.1U [M]
C713	ECUV1C104MBM	16V 0.1U [M]
C714	ECEA0JKA101I	6.3V 100U [M]
C716	ECUE1H561KBN	50V 560P [M]
C717	ECUWNE104ZFN	25V 0.1U [M]
C718	ECUVNC224KBN	16V 0.22U [M]
C721, 722	ECUV1H100DCN	50V 10P [M]

Ref. No.	Part No.	Values & Remarks
C723	ECEA1AKA221I	10V 220U [M]
C724	ECUV1C104MBM	16V 0.1U [M]
C725, 726	ECUE1H102KBN	50V 1000P [M]
C727, 728	ECEA1HPK010I	50V 1U [M]
C730	ECUWNE104ZFN	25V 0.1U [M]
C731, 732	ECEA0JKA221I	6.3V 220U [M]
C733	ECUZNE104MBN	25V 0.1U [M]
C734	ECEA1AKA221I	10V 220U [M]
C735-737	ECUWNE104ZFN	25V 0.1U [M]
C738	ECUV1C154KBN	16V 0.15U [M]
C742	ECUV1E273KBN	25V 0.027U [M]
C743	ECUWNE104ZFN	25V 0.1U [M]
C744	ECUE1E822KBN	25V 8200P [M]
C745	ECUE1H102KBN	50V 1000P [M]
C747	ECUE1H222KBN	50V 2200P [M]
C748	ECUV1H471KBM	50V 470P [M]
C749	ECUZNE104MBN	25V 0.1U [M]
C750	ECUV1C104MBM	16V 0.1U [M]
C751	ECUZNE104MBN	25V 0.1U [M]
C752	ECUE1H152KBN	50V 1500P [M]
C753	ECUV1H471KBM	50V 470P [M]
C754	ECUE1H471KBN	50V 470P [M]

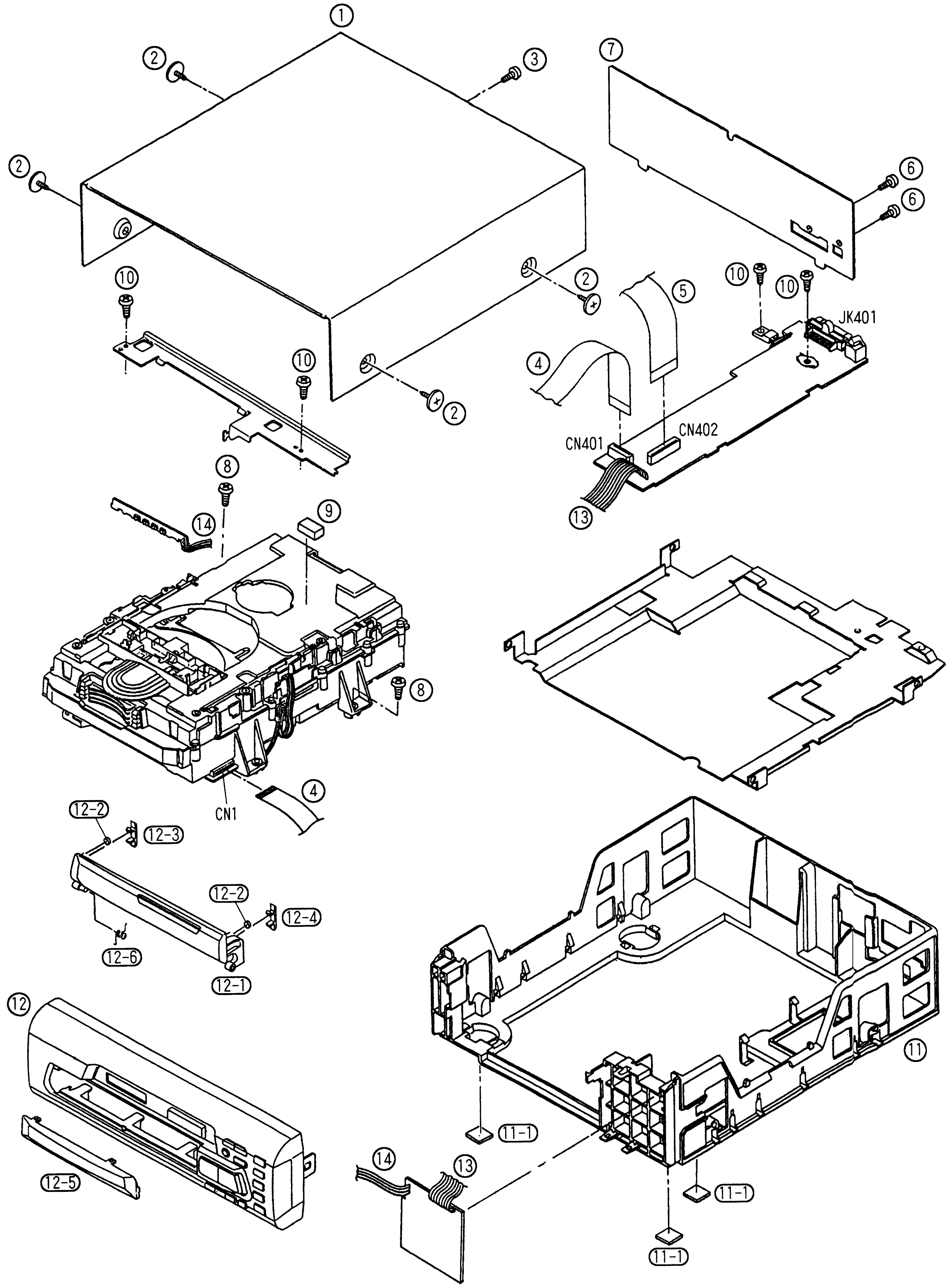
■ Replacement Parts List (Cabinet and Loading Unit)

Note: The reference number SA represent the grease and tool used for this unit.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RKM0222-3K	CABINET	[M]
2	RHD30007-K1	SCREW	[M]
3	XTBS3+8JFZ1	SCREW	[M]
4	REZ0555	FLAT CABLE	[M]
5	REZ0765	FFC(23P)	[M]
6	XTBS3+8JFZ1	SCREW	[M]
7	RGR0217B-F	REAR GRILL ASS'Y	[M]
8	RHD30065	SCREW	[M]
9	RMG0439-K	RUBBER	[M]
10	XTB3+8JFZ	SCREW	[M]
11	RYK0697-K1	BOTTOM BOARD ASS'Y	[M]
11-1	SHG1654	RUBBER	[M]
12	RYP0731A-K	FRONT PANEL ASS'Y	[M]
12-1	RGK0890A-K	DISC COVER	[M]
12-2	RMG0305-K	RUBBER	[M]
12-3	RKQ0197-X	CAP 1	[M]
12-4	RKQ0204-X	CAP 2	[M]
12-5	RKW0503A-Q	ORNAMENT PANEL	[M]
12-6	RMB0472	SPRING	[M]
13	RWJ1809125KK	FLAT CABLE(W401/9P)	[M]
14	RWJ1803130KK	FLAT CABLE(W601/3P)	[M]
		LOADING UNIT	
301	RDG0309	INTERMEDIATE GEAR	[M]
302	RDG0310	PULLEY GEAR	[M]
303	RDG0311	DRIVE GEAR	[M]
304	RDG0313	UP/DOWN GEAR	[M]
305	RDV0036	BELT	[M]
306	REM0058	MOTOR ASS'Y	[M]
307	RGQ0170-K3	DISC TRAY(1)	[M]
308	RGQ0171-K	DISC TRAY(2)	[M]
309	RGQ0172-K	DISC TRAY(3)	[M]
310	RGQ0173-K	DISC TRAY(4)	[M]
311	RGQ0174-K	DISC TRAY(5)	[M]
312	RME0170	LOCK LEVER SPRING	[M]
313	RME0179	ASSIST SPRING	[M]
314	RME0180	TRAY HOLD SPRING	[M]
315	RFKNACH430GC	MECHANISM BASE ASS'Y	[M]
315-1	RMF0221	FELT	[M]
315-2	RMG0402-K	RUBBER WASHER	[M]
316	RML0379	CONVERSION LEVER	[M]
317	RML0380	LOCK LEVER	[M]
318	RML0383	TRAY HOLD LEVER	[M]
319	RML0385	UP/DOWN LEVER	[M]
320	RMM0139	SLIDE PLATE(1)	[M]
321	RMM0141	SLIDE PLATE(2)	[M]
322	RGQ0175-K	TRAY ORNAMENT	[M]
323	RHD20010	SCREW	[M]
324	RMA0868	REINFORCING ANGLE	[M]
325	RME0171	BASE LOCK LEVER SPRING	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
326	RME0172	CARRIER LOCK LEVER SPRING	[M]
327	RML0377	BASE LOCK LEVER	[M]
328	RML0378	CARRIER LOCK LEVER	[M]
329	RMR0884-K	TRAY BASE	[M]
330	RHD20009-1	SCREW	[M]
331	RMC0274	TRAY HOOK SPRING	[M]
332	RME0173	CARRIER ARM SPRING	[M]
333	RML0376-1	CARRIER ARM	[M]
334	RMM0137	CARRIER	[M]
335	RDG0312	SPEED GEAR	[M]
336	RMM0134	DRIVE BACK	[M]
337	RMM0135	CUSHION RACK	[M]
338	XTN2+6F	SCREW	[M]
339	XTS3+8J	SCREW	[M]
340	XWE4E10	WASHER	[M]
341	RME0178-3	HOLD SPRING	[M]
342	RME0181	LIFT PREVENTION SPRING(1)	[M]
343	RME0182	LIFT PREVENTION SPRING(2)	[M]
344	RFKNLCA10EAK	MECHANISM COVER ASS'Y	[M]
344-1	RMF0221	FELT	[M]
345	RML0381	HOLD NAIL(1)	[M]
346	RML0382	HOLD NAIL(2)	[M]
347	RML0384	LIFT PREVENTION LEVER	[M]
348	RHM245ZA	MAGNET	[M]
349	RME0174	CLAMP LEVER SPRING	[M]
350	RFKNACH430GE	CLAMP BASE ASS'Y	[M]
351	RML0388-1	CLAMP LEVER	[M]
352	RMR0624-W2	CLAMPER	[M]
353	RMR0899-K	FIXED PLATE	[M]
354	XTB3+10J	SCREW	[M]
355	RMR0975-W	CAP	[M]
356	REZ0555	FFC	[M]
357	REZ0765	FFC	[M]
358	RAE0150Z	TRAVERSE DECK ASS'Y	[M]
358-1	SHGD113-1	FLOATING RUBBER	[M]
358-2	SNSD38	SCREW	[M]
359	RME0109	FLOATING SPRING(1)	[M]
360	RME0142	FLOATING SPRING(2)	[M]
361	RMK0293-1	TRAVERSE CHASSIS	[M]
362	RMS0123-1	TRAVERSE FIXED PIN	[M]
363	XTN2+6G	SCREW	[M]
364	XTV2+6G	SCREW	[M]
365	REZ0792	FLAT CABLE(3P)(W2)	[M]
366	REZ0793	FLAT CABLE(3P)(W1)	[M]
367	RMG0430-Q	RUBBER TUBE	[M]
368	XTWS3+8T	SCREW	[M]
		JIG/TOOL(S)	
SA1	SZZP1054C	TEST DISC	[M]
SA2	RFKXPG671	GREASE	[M]

■ Cabinet Parts Location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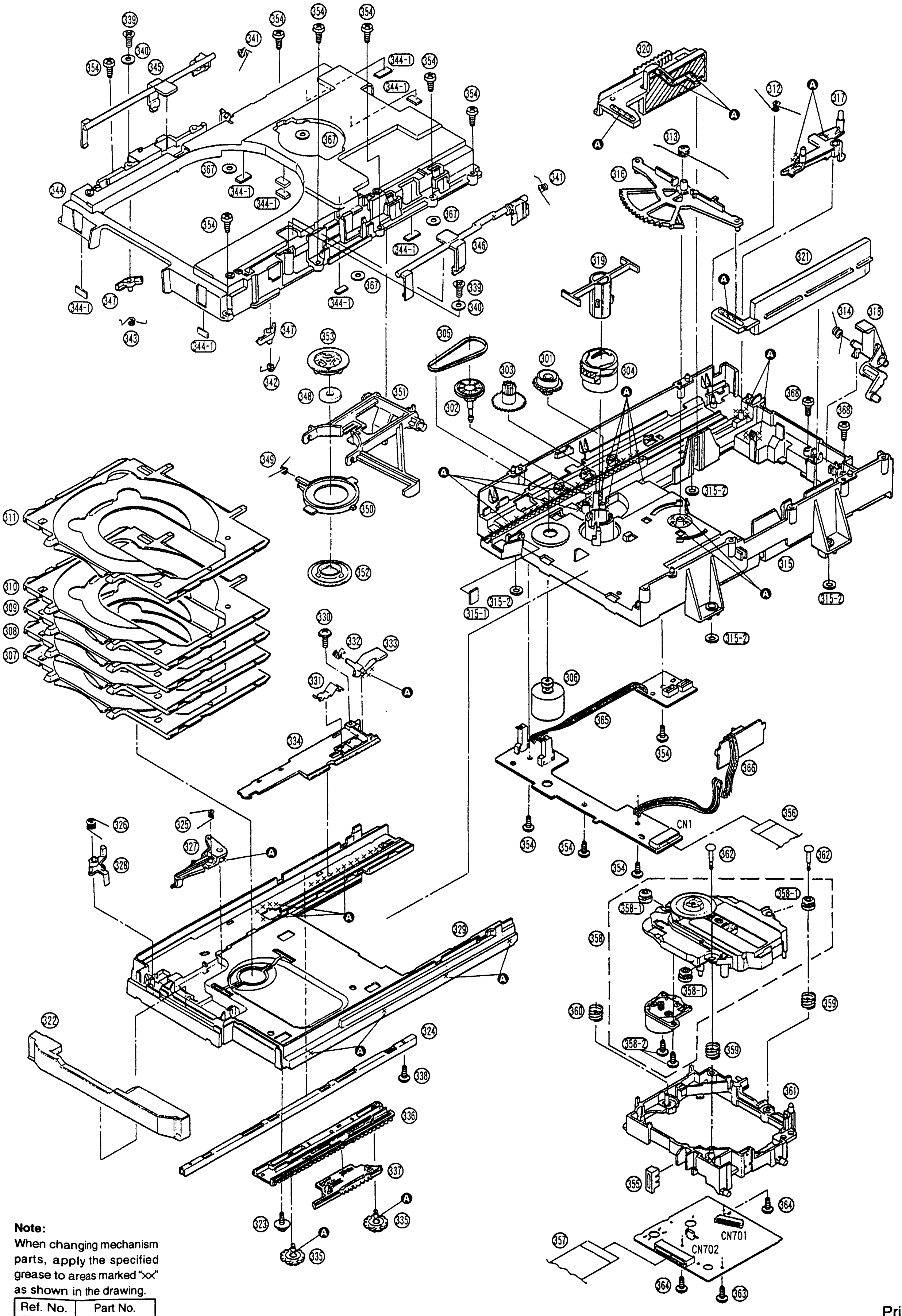
■ Loading Unit Parts Location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Note:
When changing mechanism parts, apply the specified grease to areas marked "××" as shown in the drawing.

Ref. No.	Part No.
A	RFKXPG671

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